Terminal High Altitude Area Defense (THAAD) STRAP

(version 2.3)

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FCoE- ADA School

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This System Training Plan (STRAP) is preliminary.
Front end analysis (mission, task, job) is ongoing. FCoE- ADA School will
amend and update this STRAP as details solidify.

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1.0 System Description

The Terminal High Altitude Area Defense (THAAD) system is a ground-based, transportable, deployable terminal missile defense system being fielded to protect the homeland, deployed military forces, friends, and allies from Short and Medium Range Ballistic Missiles. The THAAD system consist of a Fire Control Element, Launcher Element and Radar Element as well as the Battery Support Center (BSC). As an element of the Ballistic Missile Defense System (BMDS) Terminal Defense segment and the Army's Integrated Air and Missile Defense System of Systems (ASoS), the THAAD battery will provide the opportunity to conduct high endo-atmospheric and exo-atmospheric engagements against ballistic missiles. The THAAD system is an integral part of Theater Missile Defense (TMD) and provides upper tier active defense against Ballistic Missiles (BM) by destroying them in flight. The THAAD system provides ballistic missile defense capability by protecting assets from ballistic missile attack by interception and destruction of reentry vehicles during terminal flight phases. Fielding of the first THAAD system equipment began with the System development configuration. Missile Defense Agency (MDA) delivered the first THAAD battery to the Army in Fiscal Year (FY) 12. Initially the system will utilize the Air and Missile Defense Planning Control System (AMDPCS) for Command and Control. The Integrated Battle Command System (IBCS) will be used as a Mission Command system in the THAAD battery beginning in FY20.

2.0 Target Audience

TARGET AUDIENCE	
MOS	**PROPONENT**
14E Patriot Fire Control Enhanced Operator/Maintainer	Air Defense School
14H Air Defense Enhanced Early Warning Operator	Air Defense School
14T Patriot Launching Station Enhanced Operator/Maintainer	Air Defense School
12P Prime Power Production Specialist	Engineer (Prime Power School)
94S* Patriot System Repairer	Ordnance School
14A Air Defense Artillery Officer	Air Defense School
140A Command and Control Systems Integrator	Air Defense School
140E Air and Missile Defense (AMD) Systems Tactician/Technician	Air Defense School
25B Information System Specialist	Signal School

Additional Information/Requirements:

* Tasks associated with these MOS will be performed by CLS through FY??. Future development requirements for proponent

schools are unknown

Training Requirements

+= required, X =if available

MOS	TFCC (8 wks)	Launcher (3 wks)	BSC (2 wks)	System Admin (2 wks)	Gunnery (4 wks)	System Integration (2 wks)
14A	+	X	X	X	+	+
140A	+			+		+
140E	+	+	+	+	+	+
14E	+		X		X	+
14H	+			X	X	+
14T		+	X			+
25B				+		+
12P						
94S						

3.0 Assumptions

• There is no requirement to increase the current ADA Soldier's reading level, battery test scores, and related experiences to operate and maintain THAAD.

• Training of Soldiers for THAAD duty positions will involve Fires Center of Excellence (FCoE), Maneuver Support Center of Excellence (MSCOE), and Signal Center of Excellence (SCoE).

• There will be no increase in the total Army force structure to support THAAD.

• Training of THAAD will impact institutional, operational, and self-development training strategies of the Combined Arms Training Strategy (CATS).

• United States Army Air Defense School (USAADASCH) will use tactical equipment and TADSS to train THAAD tasks.

• There will be an increase in training base resource requirements for concurrent training of the THAAD capability.

• THAAD capability shall interface with Live, Virtual, Constructive-Integrated Training Environment (LVC-ITE) per the capabilities production document (CPD).

• Training development resources, manpower, and equipment will be available to support the THAAD capability training and training development.

• Materiel Developer (MATDEV) will provide required New Equipment Training (NET) and Instructor and Key Personnel Training (I&KPT) on training equipment to include TADSS and prior to resident training start date.   • THAAD New Equipment Training (NET) will be provided by the THAAD Program Manager in support of THAAD development, testing, and fielding.

• THAAD system TADSS will be provided to units concurrent with system fielding.

•   The operation and maintenance of training devices and/or embedded trainer software must not require aptitude, education, or training that exceeds target audience capabilities. The Training Developer (TNGDEV) shall monitor design and development of TADSS and ET to ensure Soldiers can effectively and efficiently operate the THAAD system.

•   Operations and maintenance design of THAAD system TADSS will be IAW Human Engineering (HE) design criteria and requirements. Use of hazardous materials or exposure of personnel to health hazards shall be minimized or eliminated IAW AR 40-10. Personnel with potential exposure to hazardous materials will be trained on safe handling procedures IAW Occupational Safety and Health Agency (OSHA) CFR 29

Part 1910.1200, Hazard Communication. Training equipment will be analyzed to identify and eliminate hazards or reduce associated risk to an acceptable risk level.

• Contractor Logistics Support (CLS) will be employed during the design, integration, and testing schedules of THAAD system fielding. Fielded systems will continue with CLS for the foreseeable future for field and sustainment level maintenance until a decision is made to migrate to a different support strategy. Built-in Test/Built in Test Equipment (BIT/BITE) capability will be provided. CLS will be able to interface/integrate with home station and sustainment level maintenance facilities. CLS for the THAAD system encompasses not only maintenance-related support but also includes instructing NET and replacement training for THAAD operator/maintainers.

• Training literature and publications will be provided in sufficient quantities IAW Training and Doctrine Command (TRADOC) Regulation (TR) 350-70.

• New Equipment Training Support Package (NET TSP) will be provided in sufficient quantity and within required time frames by the prime contractor to support THAAD fielding and testing.

• Existing training schools will be used whenever possible to support the THAAD system. Every attempt should be made to co-locate schools for sharing of tactical equipment and training devices.

4.0 Training Constraints

Constraint Type	Probable Impact	Mitigating Efforts	
Support services (contract support)	Shortfalls in funding	Increased use of military/governme personnel	
Equipment density	Insufficient number of vehicles (Radars=0) in the institution to conduct hands-on training in all courses	Increased reliance on TADSS. Train shifts if needed	
System Safety . Segregation of the embedded training (ET) from operational processing.	Description- The leakage of test, training or exercise data into operational (real-world) processing or confusion on the part of an operator between training/operations could contribute to the occurrence of an operational mishap	Training Solutions to include the THAAD Table Top Trainer (TT3) shoul be considered. Soldiers should be trained in the useand segregation c Embedded Training to preclude operational mishap	
Doctrine	Current doctrine, concept of operations (CONOPS), Army training publications, training and air defense design are based on a point defense of critical assets as opposed to an area air defense approach which will be implemented with AIAMD.	Doctrine must be written to suppor the area defense concept of operations.	
Budgetary	THAAD tactical training equipment, components, and TADSS must be provided in sufficient quantities and within the appropriate time frames to support NET, operational testing, system fielding and institutional/replacement training.	TADSS and the Institutional Traini base (ITB) solutions must be considered as a training solutions.	

- The following MANPRINT constraints apply:

? **Human Factors Engineering** : Conduct risk assessment to identify potential human factors relating to operation of the THAAD Systems and include in training. Conduct risk assessments to determine system safety requirements as required.

? **Manpower/Force Structure:** The system shall not require an increase in crew size, maintenance manpower, or support personnel requirements.

? **Personnel:** Any new maintenance and/or operator skills required shall be covered during NET and shall be supported for incorporation into POIs and into any required training devices to include software development for new lesson plans.

?**Training** : Ensure that a means to properly evaluate the ability of the crewmember to perform the tasks being trained exists. Identify critical tasks during development and testing.

? **System Safety:**

- There are two safety Confirmations(SC) supporting the THAAD System. System hazards and limitations will be enforced during training.
- THAAD Soldier Training will only simulate the battery 2 configuration equipment with the exception of the Missile Round (MR) and the BSC
- Training will be conducted and administered by permanent on-site subject matter experts.

?**Health Hazards** : No known constraints in the training systems.

? **Soldier Survivability:** No known constraints.

5.0 System Training Concept

This concept supports fielding, replacement training, and sustainment training for the institution and the fielded units. It contains all necessary training support, training products, and courses. The strategy includes training requirements for institutional, operational, and self-development domains.

The MATDEV will design and develop training materials compliant with the Analysis Design Development Implementation Evaluation (ADDIE) process as identified in TRADOC Regulation 350-70, the Army Learning Model TP 525-8-2 w/C1 06Jun2011, and MIL-PRF-29612B. The training developer (TNGDEV) reviews and provides input to the new equipment training plan (NETP) through Army Modernization Training Automation System (AMTAS). The MATDEV provides the NETP, NET, course materials, and the presentation of NET courses. The MATDEV provides TADSS prior to hands-on NET to conduct training. The responsible training proponent ensures effectiveness of NET and training support components are validated before the conduct of NET.

Maintenance and operators training will incorporate a combination of conference and practical application training for operators and maintainers. They will use tactical equipment, TADSS, institutional maintenance trainer (IMT), embedded training, and cognitive air defense training simulation (CAD-TS) during practical exercises where applicable. Officers, warrant officers, and enlisted Soldiers will use all available training material provided and developed for self-development.

TNGDEV will identify the requirement for doctrine and tactics training (DTT) upon receipt of the draft NETP. When required and feasible, DTT should be conducted after NET. The personnel required to conduct DTT are GS-11s, E-7s or above from the Doctrine, Enlisted/Officer, and Operational Training Divisions of DOTD. DTT provides information on how to employ the improved system to accomplish its wartime mission.

The Training Test Support Package (TTSP) provides procedures to train and certify Soldiers and units to accomplish their mission during wartime. Leaders conduct individual (operations and maintenance training), collective training, and evaluation to achieve certification. The TNGDEV updates the training documents of

the TTSP consisting of the STP, UTL, combined arms training strategies, training circulars, and gunnery program.

The UTL has a listing of collective tasks for unit training. The UTL identifies all of the collective tasks the unit is organized, manned, and equipped to conduct. This ensures units train the appropriate tasks to required proficiency levels.

CATS provide task-based, event-driven training strategies designed to assist unit commanders in achieving training readiness with Army training guidance and doctrine. They can be adapted to the units requirements based on the commander's assessment. CATS identify and group the supporting collective tasks into task groups for each mission-essential task. The discussion of each task group includes guidance for training the task group, resource requirements, and training support requirements for each proposed training event.

TC consist of drills that are essential elements to the success of the units on the battlefield. These drills provide performance measures and a collective sequential set of procedures that, when applied Army-wide, will minimize the impact caused by the turnover in personnel. These drills are used by the battery and platoon trainers to train their crews to do the selected collective tasks correctly, rapidly, and confidently. Drill training is an integral part of peacetime combat-oriented training, which improves proficiency in mission-oriented individual and collective tasks, maintains high combat readiness, and promotes cohesive teamwork and esprit de corps. This method requires training individual tasks, leader tasks, and collective tasks before the conduct of critical wartime missions. The purpose of evaluating a drill is to determine if the unit can perform all of the performance measures to standard. The gunnery program is used to train and test the proficiency of the individuals, crews, and collective tasks. This program standardizes gunnery training and gunnery skill qualifications through performance-based, sequential, progressive, realistic, and challenging training.

The gunnery program references the current drills, UTL, and technical manuals (TMs) identifying the tasks to be performed by individuals and firing unit crews for precertification tables leading up to certification.

Table IV: Crew members certify on the equipment and must pass a written examination within 90 days of their arrival in the unit. Written examinations are a semi-annual requirement thereafter and are given in conjunction with a Table VIII or Table XII evaluation, regardless of when the last exam was passed.

Table VIII: (Semi-annual) Crews are Table VIII certified

Table XII: (Annual) Crews are Table XII certified

Reference Chapter 3.0 for current assumptions when referencing the Terminal High Altitude Area Defense (THAAD) system.

5.1 New Equipment Training Concept (NET)

NET for THAAD shall be programmed and provided by the MATDEV per AR 350-1, Army Training and Leader Development and within the framework of the DoD/Army Materiel Acquisition Process.The Training Support Plan (TSP) will be developed using the analysis, design, development, implementation, and evaluation (ADDIE) process. Further, the Adaptive Learning Model methods will be incorporated into the TSP. The MATDEV will ensure all NET materiel is developed IAW AR 350-1. The training development process will be IAW TRADOC Reg 350-70, Army Learning Policy and Systems. NET will transfer the THAAD equipment information and technical skills documented in individual and collective tasks from the MATDEV/contractor/trainer to the user. NET Training will be conducted on an as-needed basis as additional systems or significant system upgrades are fielded to support the Army AOC/MOS. The TNGDEV, responsible for oversight, shall ensure that Army regulatory requirements are adequately addressed thus providing effective and efficient training for all Soldiers throughout the NET, testing, fielding, and sustainment phases. The following are the minimum requirements for NET in general:

- The New Equipment Training Plan (NETP) will address multimedia Doctrine and Tactics Training (DTT) that with other products will support NET, operational training and self-development training. The THAAD system equipment and training subsystem with all its devices and products must be available for NET. NET is managed by the MATDEV and monitored by DOTD for each newly fielded battery. Multiple iterations of NET courses will be required as batteries are equipped and fielded. NET will be required when new hardware or software is introduced to the system due to obsolescence, cost effectiveness, etc.

- The training will include, but is not limited to, individual and collective tasks, skill analysis and the embedded training system. New Equipment Training (NET) including Key Personnel (KP) Training, DTT, and TADSS. The training products generated will support NET and unit operational/sustainment training as well as new hardware fielding and new software fielding. Impacts across the Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel and Facilities (DOTMLPF) spectrum and applying the concepts of dL as detailed in TRADOC Reg 350-70. This training subsystem will be developed concurrently with the system hardware and software, validated during testing, and will be in place when the system fielding begins. TADSS will be fielded as part of the system per AR 350-38, Training Device Policies and Management.

- NET training for AOC 14A and MOS series 14, 12 and 140 must provide instruction for operator/maintainer personnel to support THAAD. Graduates of AOC 14A and MOS series 14, 12, and 140 THAAD institutional training shall be qualified to operate and maintain the THAAD system upon graduation.

- MATDEV will coordinate plans for NET training and training support with TNGDEV, CBTDEV, testers, and user ACOMs, ASCCs, and DRUs when NET is required for new and improved equipment.

THAAD NET will be conducted in two phases:

- Phase I training will include the Key Personnel (KP) Course, Technical Training Courses, and DTT which will be prepared and taught by the system contractor(s).

- Phase II training will be conducted as part of the materiel fielding process by the unit commander at the unit(s) location. This training will consist of unit individual, crew, and collective training. Contractor contact teams will provide additional training/assistance on an as-needed basis which may include utilization of the required manuals, training materials, POIs, and lesson plans developed for NET as required.

A listing of NET courses is provided in paragraph 6.1.1.2.2.

The MATDEV is responsible for personnel and resources in support of the NET effort to include:

- **New Materiel Information Briefing Team (NMIBT).** The NMIBT consists of a

training package and/or briefing team and is the material developer/Program
Manager (PM) responsibility. This team will provide the gaining commanders and
staffs with all essential information needed to facilitate the fielding of the
THAAD system.

- **New Equipment Training Team (NETT).** The PM will plan, fund, organize, and
  field the NETT effort. The NETT effort is specified in AR 350-1, Army Training
  and Leader Development. The THAAD Project Office (TPO) will determine the
  composition of the NETT. The NETT package will be validated by TPO.
  The Directorate of Training Development and Doctrine (DOTD) will develope and
  present THAAD Doctrine, Tactics, Techniques and Procedures (DTTP) training for
  NET. The training will support the requirements of the NET strategy, and the
  POI will reflect the most current DTTP documentation. Policy requires that DTT
  is conducted immediately following NET IAW AR 350-1.

Other NET Considerations:

- Interim training devices, USOT or RTL and any institutional training devices,
  (ICOFTs), must accurately replicate conditions of the actual system equipment
  or there will be negative training impact. MATDEV must ensure any design
  changes in the fielded system will be reflected in the ICOFT, USOT, and RTL.

- Human Resources Command (HRC) shall identify basic MOS and AOC qualified
  Soldiers to undergo training through a NET course for the THAAD battery
  fielding(s). Subsequent to initial fielding (FY15)replacement training for
  officers, warrant officers, and enlisted Soldiers will be provided/conducted
  via (contractor instructed) institutional/replacement training under the
  guidance of USAADASCH (30th ADA Brigade) for ADA (MOSs, AOCs) and non-ADA
  MOSs, as required. Soldiers will be awarded a PDSI upon completion of THAAD
  NET and institutional/replacement training. The PDSI will be replaced by an
  Additional Skill Identifier (ASI) once a TRADOC-approved POIs are developed.
  All training will be monitored by TNGDEV selected Army and DAC personnel to
  ensure Army training standards are evaluated and maintained. Tactical
  equipment with ET, TADSS, TSPs, and the CLS training base instructors will be
  the principle means of NET and institutional/replacement training. Soldiers

must receive operational training (i.e. Fire Control, Radar or Launcher training) to receive the PDSI. Soldiers will NOT receive PDSI for attending Technical Orientation Courses, On-the-Job Training (OJT), etc.

5.2 Displaced Equipment Training (DET)

There will be no displaced equipment training for THAAD.

5.3 Doctrine and Tactics Training (DTT)

DTT provides the guidance to commanders, leaders, staff, and operators on how to employ and sustain the combat capabilities of new or improved AMD equipment, systems, or organizations. The requirement for DTT is based on the changes to current AMD doctrine and tactics and the development of THAAD as a new system. DOTD determines the training required for DTT upon decision to field a new AMD organization and includes the information in the NETP for funding. DOTD shall approve DTT and provide oversight for or conduct the execution of training. In addition to system/organization specific DTT, Soldiers will be provided the necessary instruction to enable them to maximize the capabilities of their system/organization while fully participating in Integrated/Joint AMD operations as an effective member of Integrated Air and Missile Defense System of Systems. DTT is an inherent part of NET, Institutional/replacement courses, and unit operational/sustainment training. DTT needs to be exported to allow other Army components and Joint components the necessary understanding to allow effective deployment and employment of THAAD. TNGDEV approved DTT will be provided in an IMI format that will deliver the required training through a TSP for Soldiers following NET. The DTT TSP will also be effective for unit sustainment training and self-development training for operational units.

5.4 Training Test Support Package (TTSP)

The Training TSP is provided to the test agency by the proponent developers of the new system. A Training TSP is assembled by the proponent training developer for each affected operator and maintainer Military Occupational Specialty. Where there are systems cross proponent responsibilities, the proponent for the requirement will assemble training materials for supporting Military Occupational Specialty. The lead proponent will consolidate the package and ensure it does not contain conflicting requirements. The Training TSP contains information used by the trainer to train test players and for the tester's use in evaluating training on a new or upgraded materiel system. It focuses on the performance of specific individual and collective tasks during operational testing of a system. The Training TSP should be updated prior to each EUT, LUT, IOT, and FOT during a system's development, or as required by the TEMP or OTP. Training TSP for non-tactical C4/IT and space systems should be tailored to the skills and abilities of the target audience scheduled to use the system. If there is no specified Military Occupational Specialty to use the information system, training should be addressed and the users described. The final TTSP contains the items listed below. Some listed products for draft TTSPs may not be available.

 Initial TTSP consist of:

- Training Test Certification Plan (TTCP).
- Syatem Training Plan (STRAP)

Final TTSP consist of:

- POIs and/or NET TSPs for each MOS affected. (MATDEV provides to TRNDEV)
- List of system Major End Items (MEI), training devices, embedded training components, and simulators.
- Target audience description.

- Soldier training publications (STP) or changes to STPs.

- Training Circulars (Crew drills).

- Lesson plans.

- Ammunition, targets, and ranges required for training.

- Critical MOS task list.

- Field manuals (FM) or changes to FMs.

TTSP submission requirements	
Type	Provided to test agency
1. Initial	Nine months (270 days) before test as specified in outline assessment plan.
2. Final	At least 60 days before test player training or as specified in outline assessment plan (and to HQ TRADOC, DCS, G-3/5/7 (ATIC-SAIS).

A Training Test Support Package (TTSP) may be taylored and should be agreed to by the tester as well as the TRNDEV and unit in instances where the system test only covers upgrades to software or hardware

6.0 Institutional Training Domain

6.1 Institutional Training Concept and Strategy

Initially, institutional/replacement training will be conducted by MATDEV-contracted CLS instructors and 30 TH ADA Brigade Instructors. Contract Trainers will continue to conduct training through FY15. The Army must be prepared to take over responsibility for training after FY15. The institutional training strategy for the system will comply with Army and TRADOC training regulations. The THAAD system training base will use state-of-the-art capabilities and media to provide effectiveness and efficiencies in cost and time. Media selected for implementation will be based on in-depth analysis of operational needs and state of the art media capabilities available. The following are some of the instructional areas covered by institutional training courses:

- USAADASCH will provide basic institutional MOS/AOC instruction as well as Professional Military Education (PME) courses for Soldiers that will man THAAD units. Appropriate existing officer, warrant officer, noncommissioned officer, and enlisted courses will be modified or new functional courses developed as required to incorporate instruction on doctrinal, tactical, logistical, operational, and maintenance subject matter.

- New advanced institutional courses, similar to Top Gun and Master Gunner instruction, are being considered by the TNGDEV in support of THAAD and beyond tactical proficiency requirements. Support MOS Soldiers will receive THAAD peculiar institutional training during instruction provided by the NETT, with the exception of Explosive Ordnance Disposal (EOD) training. THAAD EOD training will be the responsibility of the inter-service EOD School at OMEMS. CLS personnel have no requirement to conduct EOD training for THAAD.

- The institutional training base is envisioned to support development of possible new or existing MOSs and be conducted at service schools. Embedded Training (ET) capabilities and TADSS will be used extensively for institutional training and will be supplemented and verified by use of tactical system hardware and software. The system will be capable of on-line and off-line generation of tactical scenarios for the institution, unit, and embedded trainers without interrupting tactical operations. The system will be capable of providing simulated faults to support enhanced operator/maintainer

and repairer unit sustainment training. The system will allow instructor input during the development/testing of tactical scenarios and simulated equipment faults used during training.

Appropriate existing or new officer, warrant officer, noncommissioned officer, and enlisted courses will be modified or created to incorporate necessary instruction on doctrine, tactics, techniques and procedures, logistics, operations, and maintenance subject matters. DTT will be taught to THAAD personnel and address the need for battle drills and situational training exercises which embody the "how to fight" doctrine.

6.1.1 Product Lines

Product Lines. Training products for THAAD are the NET products developed for THAAD Battery fielding that will be eventually refined and approved for institutional use.

- NET Courseware/Courses
    - THAAD Fire Control Enhanced Operator/Maintainer Course
    - THAAD Launch Control Station Enhanced Operator/Maintainer Course
    - THAAD Radar Enhanced Operator/Maintainer Course
    - THAAD Prime Power Unit Enhanced Operator/Maintainer Course
    - THAAD Launcher Enhanced Operator/Maintainer Course
    - THAAD System Administrators Course
    - THAAD Staff Planners Course
    - THAAD Technical Orientation Course

- Training Publications
    - STP 44-14E14-SM-TG, Patriot and THAAD Fire Control Enhanced Operator/Maintainer
    - STP 44-14J14-SM-TG, C4I Tactical Operations Center Enhanced Operator/Maintainer
    - STP 44-14T14-SM-TG, Patriot and THAAD Launcher Enhanced Operator/Maintainer
    - TC 3.01.92 THAAD Gunnery
    - TC 44-693-10, THAAD Radar Crew Training
    - TC 44-693-11, THAAD Launcher and Tactical Reload Training
    - TC 44-693-12, THAAD Fire Controll and Communications Crew Training
    - ATP 3-01.91, THAAD Operations
    - THAAD Combined Arms Training Startegy (CATS)

- **Training Support Packages - Institutional Training Base (ITB)**
    - **Functional Courses.** The training for institutional/replacement Soldiers for fielded THAAD units will be conducted by a CLS NETT provided by the MATDEV and under the guidance of te Directorate of Training Development and Doctrine through FY14. Beginning in FY15 The Institutional Training Base (ITB) will be activated and courses of instruction to enable the ITB to provide replacement Soldiers to the active force will begin. These course do not replace NET which is the responsibility of the Program Manager (PM). All training development activities will be conducted per

AR 350-1 and TRADOC Reg 350-70 and the TRADOC 350 series Pamphlets. The following functional courses of instruction will be available:

- **043-14E10/20, THAAD Fire Control Operator/Maintainers Course**
- **043-14E30/40, THAAD TFCC/Radar Course**
- **043-14H10/20, THAAD Launch Control Station Operator/Maintainer Course**
- **043-ASIX8, THAAD Launcher Operator/Maintainer Course**
- **4F-F47, THAAD TFCC/Radar Maintainers Course (140E)**
- **4F-F46, THAAD LCS System Integrator (140A)**
- **4F-F45, THAAD Follow-on Course (14A)**

Instructor and Key Personnel Course (I&KP). TRADOC instructors, training developers, and other key personnel necessary for the training base will be trained. The course content will focus on those skills necessary to develop institutional training, operational/sustainment training, and self-development training programs for replacement personnel. The I&KP training package will be validated prior to the first presentation of I&KP training. The validation by USAADASCH and any other affected proponent schools will be based on performance testing of a representative sample of the target audience and evaluating the performance of the replacement personnel. I&KP trained personnel will be stabilized in the institution, to the extent possible, to ensure availability of qualified personnel to establish the training base. Stabilization of military instructors must receive careful consideration in terms of impact on the training base, career development of the affected Officers, Warrant Officers (WOs), Noncommissioned Officers (NCOs), and the force structure.

6.1.1.1 Training Information Infrastructure

Training Information Infrastructure .The training information infrastructure consists of hardware, software, and communications systems. These provide for local and global network infrastructures to facilitate the management, dissemination, and delivery of training product information. The THAAD interconnecting hardware, software, and communications systems will conform to both Joint and Army training architectures. Future THAAD development must provide for networked embedded training capability to participate in joint training exercises and the capability to receive simulated track information as well as command and control information over C4I networks.

6.1.1.1.1 Hardware, Software, and Communications Systems

Hardware, Software, and Communications Systems .The use of state-of-the-art distance learning capabilities (IAW TRADOC Reg 350-70) shall provide the capability to enhance and sustain Army readiness by delivering standardized training to Soldiers and units at the right place and time using multiple delivery means and techniques. This will be accomplished by leveraging technology and training design efficiencies to provide more cost effective and efficient training. It is envisioned that THAAD will use dL in training all systems operations. Training sites, connectivity, software, hardware, and Internet access capabilities must be considered.

6.1.1.1.2 Storage, Retrieval, and Delivery

Storage, Retrieval, and Delivery . The institutions, units and individuals will use official Department of the Army (DA) publications and forms (see below) to access approved FM, ATP, STP and TCs for THAAD. Official Department of the Army (DA) publications are managed by the Army Publishing Directorate (APD) under the direction of the Administrative Assistant to the Secretary of the Army (AASA). The Army uses the latest publishing technologies to produce high-quality, enhanced, electronic publications and forms. Currently all Air Defense Training material is available at the Central Army Registry (CAR) located at https://atiam.train.army.mil/catalog/#/dashboard .

6.1.1.1.3 Management Capabilities

Management Capabilities .The Army Learning Management System (ALMS) is an infrastructure platform through which learning content is delivered and managed. It consists of a combination of hardware and software tools that perform a variety of functions related to online and offline training administration, as well as student and performance management. The ALMS will manage both the content and the users, and is flexible enough to expand with growth and maturity of the system and the supported organization. This system will track institutional student progression through lessons, exercises, and evaluations. A similar system is in place for THAAD NET.

6.1.1.1.4 Other Enabling Capabilities

Other Enabling Capabilities .Interactive Electronic Technical Manuals (IETMs) and exportable TSPs will be used to augment delivery of training products. These electronic manuals and TSP will be archived on the resources discussed in paragraph 6.1.1.1.2 and will be accessible through the embedded training functionality of the system equipment in future development.

6.1.1.2 Training Products

Training Products .Institutional training will require courseware, courses, training publications, ET, and TADSS to support THAAD training. Interactive courseware will be combined with the use of ET/TADSS to teach the skills and knowledge needed to become proficient in the individual and collective tasks of the THAAD system. The ET and TADSS will be realistic in form, fit, and function and replicate the system's hardware, software, and operational functions.

6.1.1.2.1 Courseware

Courseware .Interactive courseware (ICW) will be used to train THAAD system Soldiers in the courses listed in Para 6.1.1.2.2. For institutional training, some of the courses may differ from those presented for THAAD.

6.1.1.2.2 Courses

Courses .Envisioned institutional training courses that will/may be affected by the fielding of THAAD are:

- **Advanced Individual Training (AIT).** USAADASCH and any other service schools impacted by THAAD fielding institutional training requirements will perform needs analyses to determine to what degree THAAD system training will be integrated into service school's AIT courses in the FY15 timeframe.

- **Advanced Leader Course (ALC).** USAADASCH and other service schools impacted by THAAD fielding will perform needs analyses to determine to what degree THAAD system training will be integrated into the ALC course material.

- **Senior Leader Course (SLC)** Training requirements of all common core and branch/specialties will be assessed to ensure that SLC attendees receive appropriate instruction. USAADASCH and other service schools impacted by THAAD fielding will perform needs analyses to determine to what degree THAAD system training will be integrated into SLC course material.

- **Warrant Officer Basic Course (WOBC).** USAADASCH and other service schools impacted by THAAD fielding will perform needs analyses to determine to what degree THAAD system training will be integrated into the basic course.

- **Warrant Officer Advanced Course Course (WOAC).** USAADASCH and other service schools impacted by THAAD fielding will perform needs analyses to determine to what degree THAAD system training will be integrated into the advanced course.

- **Basic Officer Leader Course –Branch (BOLC-B).** USAADASCH will perform needs assessment to determine to what degree THAAD system instruction will be integrated into the branch/specialty portion of BOLC-B.

- **Captains Career Course (CCC) THAAD system.** USAADASCH will perform needs analyses to determine to what degree THAAD system instruction will be integrated into the branch/specialty portion of CCC.

- **Pre-Command Course (PCC).** USAADASCH will perform needs analyses to determine to what degree THAAD system instruction will be integrated into the Pre-Command Course.

- **Reclassification training courses.** THAAD system reclassification training will be conducted as required. USAADASCH and other service schools impacted by THAAD fielding will perform needs analyses to determine to what degree reclassification training courses are necessary starting in the FY15 timeframe.

- **Intermediate Level Education (ILE).** USAADASCH will perform needs analyses to determine to what degree THAAD capability instruction should be integrated into the ILE Course.

As a minimum, Training the System capability will require the following NET courses to support fielding.

- **THAAD Technical Orientation Course.** A program oriented key personnel course to familiarize subject matter experts (SMEs), staff officers, officers, and senior NCOs at all levels in the management and deployment of the THAAD system. The course describes the mission, system components, operational and functional capabilities, maintenance concept, and the THAAD training program.

- **THAAD Staff Planners Course.** A course of instruction designed to train staffs at the Battalion, Brigade and Army Air and Missile Defense Command (AAMDC) the intricacies of THAAD planning and employment at the theatre level. The course would describe the employment, integration, operation and support of THAAD in a BMDS role when all assets of the BMDS are present.

- **Technical Training Courses.** These courses provide training on the operations, maintenance, repair, and technical aspects of the THAAD system:

- **THAAD Fire Control Course (TFCC).** This course will provide training to ADA personnel in operations and maintenance of the following subsystems: THAAD Tactical Operations Station (TOS), Launch Control Station (LCS), and Station Support Group (SSG). It will cover all major and associated components and the operational characteristics and capabilities of each. The course will teach all appropriate operational procedures in deployment, march order, emplacement, defense planning, engagement operations, force operations, system initialization, system integration, fault diagnostics, removal, and replacement of Line Replaceable Units (LRUs), PMCS, Battle Damage Assessment and Repair (BDAR), and pre/post processing.

- **Launch Control Station Enhanced Operator/Maintainer Course.** This course will provide training to ADA personnel in operations and maintenance of the following subsystems: Data Processing Group, Environmental Support, Networking, Power, and Voice Communication. It will cover all major and associated components and the operational characteristics and capabilities of each. The course will teach all appropriate operational procedures in deployment, march order, emplacement, force operations, system initialization, system integration, fault diagnostics, removal, and replacement of LRUs, PMCS, BDAR, and pre/post processing.

- **Radar Enhanced Operator/Maintainer Course.** This course will provide training to ADA personnel in operations and maintenance of the following subsystems: Antenna Equipment Unit (AEU), Electronics Equipment Unit (EEU), Prime Power Unit (PPU), and the Cooling Equipment Unit (CEU). It will cover all major and associated components and the operational characteristics and capabilities. The course will teach all appropriate operational procedures in deployment, march order, emplacement, system initialization, system integration, fault diagnostics, removal, and replacement of LRUs, PMCS, BDAR, and pre/post processing.

- **Prime Power Unit (PPU) Enhanced Operator/Maintainer Course.** This course will provide training to personnel in operations and maintenance of the PPU. It will cover all major and associated components and the operational characteristics and capabilities of each. The course will teach all appropriate operational procedures in deployment, march order, emplacement, fault diagnostics, removal, and replacement of LRUs, PMCS, and BDAR.

- **Launcher Enhanced Operator/Maintainer Course.** This course will provide training to ADA personnel in operations and maintenance of the following subsystems: Launcher, Missile/Canister, and Missile Round Pallet (MRP). It will cover all major and associated components and the operational characteristics and capabilities of each. The course will teach all appropriate operational procedures in deployment, march order, emplacement, missile reload, system initialization, system integration, fault diagnostics, removal, and replacement of LRUs, PMCS, and BDAR.

- **THAAD System Administrators Course.** This course will provide training to ADA personnel in administration of systems associated with the THAAD Weapon System. The course will teach all appropriate operational procedures in system initialization, system integration, fault diagnostics, removal, and replacement of LRUs, and pre/post processing.

- **Instructor and Key Personnel Course (I&KP).** TRADOC instructors, training developers, and other key personnel necessary for the training base will be trained. The course content will focus on those skills necessary to develop institutional training, operational/sustainment training, and self-development training programs for replacement personnel. The I&KP training package will be validated prior to the first presentation of I&KP training. The validation by USAADASCH and any other affected proponent schools will be based on performance testing of a representative sample of the target audience and evaluating the performance of the replacement personnel. I&KP trained personnel will be stabilized in the institution, to the extent possible, to ensure availability of qualified personnel to establish the training base. Stabilization of military instructors must receive careful consideration in

terms of impact on the training base, career development of the affected Officers, Warrant Officers (WOs), Noncommissioned Officers (NCOs), and the force structure.

- **Functional Courses.** The training for institutional/replacement Soldiers for fielded THAAD units will be conducted by a CLS NETT provided by the MATDEV and under the guidance of te Directorate of Training Development and Doctrine through FY14. Beginning in FY15 The Institutional Training Base (ITB) will be activated and courses of instruction to enable the ITB to provide replacement Soldiers to the active force will begin. These course do not replace NET which is the responsibility of the Program Manager (PM). All training development activities will be conducted per AR 350-1 and TRADOC Reg 350-70 and the TRADOC 350 series Pamphlets. The following functional courses of instruction will be available:

  - **043-14E10/20, THAAD Fire Control Operator/Maintainers Course**
  - **043-14E30/40, THAAD TFCC/Radar Course**
  - **043-14H10/20, THAAD Launch Control Station Operator/Maintainer Course**
  - **043-ASIX8, THAAD Launcher Operator/Maintainer Course**
  - **4F-F47, THAAD TFCC/Radar Maintainers Course (140E)**
  - **4F-F46, THAAD LCS System Integrator (140A)**
  - **4F-F45, THAAD Follow-on Course (14A)**

Training strategy for repairers will solidify at a later date once the Performance Based Logistics (PBL) package has been decided upon and implemented

6.1.1.2.3 Training Publications

Training Publications .The fielding of the THAAD system will require the development of training manuals that shall be in digitized formats and be capable of archiving in the Army Training Digital Library (ATDL). The THAAD Combined Arms Training Strategy (CATS) will support the three (3) pillars of training: institutional, operational, and self-development. CATS provide direction on how the unit trains and identifies the best mix of training resources to actually accomplish the training. The Unit CATS and STRAC strategies are the doctrinal templates of training events, frequency, and duration that a commander uses in developing unit training guidance, strategy, and calendars. The critical training events in CATS and STRAC are the common building blocks for the commander's plan. The CATS provides leaders with a menu of training events and identifies resources for planning and training management. The CATS is based on approved doctrine, is performance-oriented, and emphasizes hands-on practice in the skills required for soldiers and units to achieve and sustain proficiency on individual and collective tasks IAW the Mission Essential Task List (METL), Crew Drills, Unit Task Lists, Gunnery and STPs. Sequentially and progressively, soldiers must demonstrate performance to standard before progressing to the next level of training. Products include but are not limited to the following Publications, and also need to be developed, (Field Manuals and Interactive Electronic Technical Manuals, although not technically training publications, are included in this list):

- • Training Publications
  - STP 44-14E14-SM-TG, Patriot and THAAD Fire Control Enhanced Operator/Maintainer
  - STP 44-14J14-SM-TG, C4I Tactical Operations Center Enhanced Operator/Maintainer
  - STP 44-14T14-SM-TG, Patriot and THAAD Launcher Enhanced Operator/Maintainer
  - TC 3.01.92 THAAD Gunnery
  - TC 44-693-10, THAAD Radar Crew Training
  - TC 44-693-11, THAAD Launcher and Tactical Reload Training
  - TC 44-693-12, THAAD Fire Controll and Communications Crew Training
  - ATP 3-01.91, THAAD Operations
  - THAAD Combined Arms Training Startegy (CATS)

6.1.1.2.4 Training Support Package (TSP)

Training Support Package (TSP) .A major part of the THAAD training subsystem is the system TSP.It will contain the full complement of training support products required to conduct training of the system during NET and can be used to facilitate unit operational/sustainment training and self-development training. Wherever possible, the TSP components will employ ET capabilities, be IMI based, and/or use distributed learning technologies. IMI training materials shall conform to Army design standards, be Shareable Content Object Reference Model (SCORM) compliant, and be developed using the latest version Army standard courseware design tools or other acceptable TRADOC-approved courseware design tools. The MATDEV has decided to use other government acceptable tools (Captivate). TNGDEV should ensure latest version of the Captivate program is on hand and enough license are provided to ensure proper development of training material.

6.1.1.3 TADSS

THAAD TADSS programmed growth must allow for interaction with the future Army Integrated Air and Missile Defense (AIAMD)System of Systems trainers and must provide the training capability to perform interface and inter-operability functions/integrated training with other joint and combined arms training while supporting AMD requirements.

The most effective institutional training requires a combination of Major End Items (MEIs) of actual system equipment and Training Aids, Devices, Simulators, and Simulations (TADSS). Results of two studies, the THAAD Training Impact Analysis (TIA), 30 June 1994, and the THAAD Cost and Training Effectiveness Analysis (CTEA), May 1997 indicate that institutional training would be more cost effective if TADSS based and provides the rationale for THAAD training device requirements. Optimal training includes training on high fidelity TADSS and validation of the training on actual system equipment.

TADSS requirements available to support training for NET, IMT, Advanced Individual Training (AIT), and Assignment Oriented Training (AOT) differ from the system TADSS requirements for future development. The ICOFT will not be available initially when NET training begins. In lieu of the ICOFT, the MATDEV has developed other interim training aids (in addition to those required by the TNGDEV) that are already in place for testing, NET, and institutional/ replacement training. These TADSS, the User System Operator Trainer (USOT), THAAD Launcher Operator Training System (TLOTS), and Radar Training Laboratory (RTL) will be used by system contractors to assist the trainers in satisfying contractual and TNGDEV training requirements. They may be phased out or modified to meet training requirements in subsequent development.

The MATDEV may choose to use other devices to support institutional/replacement training and for testing/fielding (e.g. User System Operator Trainer (USOT), Radar Training Lab, or ICOFT). As the THAAD system is modified and/or upgraded in the future, all applicable ET/TADSS will also be modified to insure that training capabilities match those of the tactical system (subject to approval by TNGDEV).

TADSS will, as a minimum, be required at the locations indicated in the following table. The table depicts where the TADSS are to be located and the training purpose/function supported. This chart is not intended to limit use of TADSS but to present in chart format where TADSS are envisioned to be used. These locations may change based on operational needs and the results of future Training Effectiveness Analyses (TEA). The quantity of devices is based on predicted student loads, instructor/student ratios, media of instruction and Army needs. Estimated quantities are included in this STRAP [A2] .

TADSS Requirements for the THAAD System			
TADSS EQUIPMENT			
PURPOSE/FUNCTION	*NET*	*INSTITUTION*	*UNIT*

INSTITUTIONAL CONDUCT OF FIRE TRAINER (ICOFT) (Simulator) (Two for Institutional Training) CONSIST OF:			
THAAD Fire Control and Communications Part Task Trainer. (TFCC-PTT)			
• Crew Operations		X	
• Enhanced Operator/maintainer Functions		X	
• Engagement Operations		X	
• Force Operations		X	
• Fire Control Operations		X	
• Control Console Evaluation • Function		X	
• Enhanced Operator/Maintainer Functions and R&R Functions		X	
• System Repairer Functions (TBD)		X	

- **THAAD SOFTWARE OPERATOR TRAINER (TSOT) (Simulator)(24 WS per Lab) (1 Lab per ICOFT)**

• Crew Operations	X	X	
• Enhanced Operator/maintainer Functions	X	X	
• Engagement Operations	X		X
• Force Operations	X		X
• Fire Control Operations		X	X
• Control Console Evaluation Function		X	X
• **RADAR TRAINING LAB (RTL) (Simulator) (1 Lab per ICOFT)**			
• Radar Initialization and Remove & Replace (R&R) Functions		X	X
• Radar Operations	X	X	
• Maintenance Monitoring	X	X	

• Enhanced Operator/Maintainer Functions and R&R Functions		X	X	
• **THAAD LAUNCHER OPERATOR TRAINING SYSTEM (TLOTS) (Simulator)(4 per lab)**			
• Missile reload/Safeto Mate		X	
• R&R and Software tasks		X	
THAAD Table Top Trainer (TT3) (Simulator) (One per THAAD Battery)(Two per Institution)			
• Combined Arms Training		X	X
• Crew Operations		X	X
• Enhanced Operator/maintainer Functions		X	X
• Engagement Operations		X	X
• Force Operations		X	X

• Fire Control Operations		X	X
TFCC Embedded Training (Instrumentation)			
• Combined Arms Training	X	X	X
• Crew Operations	X	X	X
• Enhanced Operator/maintainer Functions	X	X	X
• Engagement Operations	X	X	X
• Force Operations	X	X	X
• Fire Control Operations	X	X	X
Missile Round Trainer (MRT) (Training Device) (Three sets of eight per THAAD Battery; Sixteen weighted, Eight unweighted) There will be 16 MRTs used for NET Missile Round Pallet with MRT (Training Device) (Two MRPs with 8 weighted and 8 un-weighted MRTs for Institutional Training)			

• Crew Operations	X	X	X
• Enhanced Operator/Maintainer Functions	X	X	X
• CATS			X
Explosive Ordnance Disposal (EOD) Trainer Three Dimensional (3D)			
Classroom EOD System Trainer (CEST) (Training Aid) (One for EOD School)			
• Visual Recognition		X	
• Render Safe Procedure operations		X	
Practical EOD System Trainer (PEST) (Training Aid) (One for EOD School)			
• Visual Recognition		X	
• Render Safe Procedure operations			

		X	
Radar Skills Trainer		x	X
Launcher Skills Trainer		x	x
Cognitive Air Defense Training System (CAD-TS)			
Radar Training Device (RTD)(Training Device) (Two each for Institutional Training)			
• Power Up/ and Power Down		X	
• March Order and Emplace THAAD Radar Equipment, Radar Training Device (RTD)		X	
• Limited Enhanced Operator/ Maintainer Functions and R&R Functions		X	

6.1.1.3.1 Training Aids

THAAD Explosive Ordnance Disposal (EOD) Trainers. The purpose of these devices is to train Explosive Ordnance Disposal (EOD) personnel to recognize inherent hazards associated with the missile's explosive components and to practice EOD handling procedures to support institutional training. There are two (2) separate EOD trainers. They are the Practical Explosive Ordnance Disposal (EOD) System Trainer (PEST) and the Classroom Explosive Ordnance Disposal (EOD) System Trainer (CEST). These devices are described in the following paragraphs.

Practical Explosive Ordnance Disposal (EOD) System Trainer (PEST). The PEST shall be made to full scale. It will be both explosively and electrically inert and designated so with blue bands on the appropriate missile sections. With the exception of the designator and blue bands for the inert sections, the PEST shall replicate the external appearance and features of the tactical missile and be within 10% of the missile weight. If an inert training missile already exists that meets these requirements it may be used.

Classroom Explosive Ordnance Disposal (EOD) System Trainer (CEST). The CEST shall be made to 50% scale. The CEST shall be both explosively and electrically inert and designated so with blue bands on the appropriate missile sections. With the exception of designator and blue bands for inert training missile sections, the CEST shall replicate the internal and external appearance and features of the tactical missile. It shall contain inert replicas of all components involved in the explosive train to include safe-arm devices. The CEST shall provide cut-away areas to expose the internal components. Appropriate classroom display equipment (e.g. "dolly") shall be provided to allow for movement between training sites and to facilitate periodic maintenance.

6.1.1.3.2 Training Devices

Detailed descriptions of each of the THAAD Training devices follow.

- **THAAD Radar Training Device (RTD).** Permits training of operational functions and provides the capability to train THAAD radar crewmembers on tasks required to mechanically march order, emplace, road march, Power Up/Down and perform air-loading procedures. The RTD is used in conjunction with system prime movers for training. The RTD emulates limited remove and replace functions. The RTD emulates the size and external physical characteristics of the THAAD radar and consists of the following components:

  - **Antenna Equipment Unit (AEU).** The RTD AEU is a trailer simulating the size and physical characteristics of the THAAD radar AEU and capable of simulating the leveling and rotation tasks of the antenna. The Unit will allow Power Up/Down procedures. The unit contains coolant supply and coolant return connectors for interfacing with the coolant lines from the CEU MOET. It is used to train the soldiers in proper connection of site cables and coolant connectors. AEU will have limited R&R capabilities.

  - **Prime Power Unit (PPU).** The RTD PPU is a trailer that replicates the appearance and size of the THAAD PPU. The simulator will be used to train soldiers on PPU road march, march order and emplacement procedures. It contains 2 generators and supplies 208 Volts Alternating Current (VAC) for RTD AEU power. The generators are mounted inside to the base of the RTD PPU. Operation of these generators is achieved through the simulated right and left Electrical Instrument control panels. It is also used to train soldiers in proper connection of site cables.

  - **Cooling Equipment Unit (RTD CEU).** The trainer is a trailer that replicates the appearance and size of the THAAD CEU. The simulator will be used to train soldiers in CEU road march, March Order, and Emplacement (MO&E) and Power Up/Down procedures. It will also train soldiers in the proper

connection of site cables and coolant lines. The unit also provides power distribution to the RTD AEU via the Power Distribution Unit (PDU) panel. CEU will have limited R&R capabilities.

- **Electronics Equipment Unit (RTD EEU).** The trainer is a trailer that replicates the appearance and size of the RTD EEU. The simulator will be used to train soldiers in EEU road march, March order, Power Up/Down procedures and emplacement procedures. The unit contains a rear cupola similar in size and location to the rear cupola of the THAAD radar EEU. Within the EEU rear cupola are mock-ups of the THAAD EEU power entry and the Environmental Control Unit (ECU) control panel. It is also used to train soldiers in the proper connection of site cables. EEU will have limited R&R capabilities.

- **Missile Round Trainers (MRTs)** Missile Round Trainers (MRTs) are missile cannisters that replicate the tactical rounds and are used for training loading procedures. Fielded units are provided 24 MRTs with 16 being weighted to replicate a loaded cannister and 8 un-weighted to replicate a cannister where the Missile Round has been fired. The Institutional Training Base (ITB) will receive 16 MRTs (8 weighted and 8 un-weighted)

Note: The Radar Electrical Interconnections (REI) unit consists of twelve (12) signal, power, and status simulation cables, designed to simulate the size, weight, and physical characteristics of the THAAD radar connection cabling network and is used to support MO&E training. All connectors used on this unit are identical to those used on the THAAD radar.

6.1.1.3.3 Simulators

THAAD Institutional Conduct of Fire Trainer (ICOFT). The purpose of the ICOFT is to provide realistic training while preserving tactical equipment for operational use, validation of skills, and maximizing equipment life in the field. The ICOFT is a modular device that can be configured to support the training needs of Operator/Maintainers. The ICOFT is to train the Operator/Maintainer in the operation and maintenance of the system hardware and software for the THAAD segments (TFCC, Radar, and Launcher) in order to perform THAAD battery operations. If the Army decides to continue contracting the System Repairer tasks then the modular section of the ICOFT for System Repairers will not be added to the training device. However, if the Army decides that Soldiers will replace the contractors as System Repairers, the ICOFT will need the System Repairer functionality to support training for the System Repairer tasks. The ICOFT's instructor's Control Console (CC) is to control the four student nodes (TFCC, Radar, Launcher and Tactical Station Group-Part Task Trainer, (TSG-PTT) to operate in either independent (one node stand alone), simultaneous (two or more nodes stand alone), or collective (two or more nodes interacting) training mode configuration. The ICOFT's instructor's CC is to provide training scenario generation, user evaluation and help to the students. The ICOFT must be able to support a wartime training mission schedule, defined as two 10-hour shifts (classes) operating 6 days per week, 288 days per year. This training device will replicate the tactical system environment in three-D fidelity (form, fit and function) and support training for the THAAD system. Use of the tactical software for planning, execution and training tasks along with initialization and communication tasks for switch activation and cable connection require high fidelity. Hardware fidelity for maintenance tasks, including remove and replace tasks, which require form and fit but not all the function, suffices to be medium fidelity for most items.

The ICOFT consists of TFCC (Tactical Software Operator Trainer Lab (TSOT Lab), Radar Training Lab, Launcher Lab and Tactical Station Group- Part Task Trainer (TSG-PTT)., each composed prime item equipment for student stations, and a instructors Control Console (CC) for instructor stations. The ICOFT equipment configuration shown in the figures below reflects a notional representation. This modular common device configuration assumes a minimum equipment configuration for the Operator/Maintainer. The ICOFT (TFCC, Radar, Launcher, and MC) are controlled by instructor's CC and either operated independently, simultaneously, or collectively. When operated independently or simultaneously the respective node's instructor's CC is in control of training and when operated collectively the TFCC instructor's CC is in control of

training of all participant nodes. Each of the nodes runs tactical software (including embedded training, IETM and Help aids) and replicates operation of the tactical system. The ICOFT will use common computer hardware for all instructor and student stations. The training device hardware is unclassified when tactical software is not installed. The ICOFT nodes can be configured in all THAAD system configurations so skills learned on the ICOFT will be directly transferable to the actual system. The ICOFT may require additional part task trainers to teach critical tasks, including but not limited to initial switch settings, remove and replace functions, fault insertion, and repair of expected system failures. A PTT is defined to be a device that permits selected aspects of a task to be practiced independently of other elements of the task (MIL-HDBK-1379-4)

- **Tactical Software Operator Trainer Lab (TSOT Lab).** This lab allows Operator/Maintainer students to perform TFCC operational tasks for initialization, planning, execution, training, communications, preventive maintenance, fault diagnostics and isolation This lab can operate independently, simultaneously, or collectively with the Radar and Launcher nodes.

- **THAAD Fire Control and Communications Part Task Trainer. (TFCC-PTT)** The **TFCC-PTT** will provide training on the operational use of the THAAD Fire Control Configuration. It will replicate TOS and LCS workstation hardware interfaces and permit training of operational functions. An external equipment rack will house the updated computers and other Fire Control equipment with full, simulated, or representative functionality. The TFCC-PTT is comprised of original and commercial equivalent hardware and software that will replicate the Fire Control functionality required to train THAAD Operators. There will be 2 Dimensional and 3 Dimensional mockups internal to the TFCC-PTT that will provide the "look and feel" of the tactical equipment. An overhead projection system captures activity within the trainer for transmission to the classroom area. A recording system to record both the projection video as well as the Operator's screen display data directly from the USOT workstations is provided.

Capabilities:

- The TFCC-PTT contains hardware that is functionally equivalent (commercial versus military) to the THAAD Engineering TOS.
- Effective two-D/three-D representations of equipment within the TOS are provided for all non-functioning TFCC-PTT hardware internal to the Shelter.
- The TFCC-PTT is designed for use within an enclosed classroom environment.
- The TFCC-PTT is designed and built to support potential future growth, such as the incorporation of DIS/Synthetic Theater of War (STOW).
- The TFCC-PTT shall be designed to survive within a normal, enclosed, laboratory environment.

- **Radar Training Laboratory (RTL).** The THAAD RTL will provide a stand-alone radar training capability for hands-on operator training in a controlled environment. The RTL utilizes hardware and software emulating the tactical operations environment of the EEU for familiarization of system operations. It provides training for the operator who sits at the EEU Enhanced Operator Terminal Console and allows operators to perform state and mode transition.

Capabilities:

- The RTL supports Operator training to accomplish the following three training objectives:
- Pre & Post processing software (PPS) reports generation.
- Radar Test Control Program (RTCP) data display.
- Run all workstation related lab exercises.
- Logistics Support Concept
- The RTL shall have a 90 percent probability of successful simulated mission completion training exercises.
- The RTL shall be available for training 16 hours a day, 240 days a year.
- Radar Part Task Trainer – (R-PTT) R-PTT consist of a mock-up AEU, CEU and EEU. R-PTT is a set of standalone devices within the Radar Training Lab that is used to train soldiers on the remove and replace procedures in the IETM.

- **THAAD Launcher Operator Training System (TLOTS).** The TLOTS consists of a mock-up of the Carrier Electronics Module of the THAAD launcher containing a

37-inch flat screen monitor with touch screen capabilities, keyboard to display video simulations of various launcher tasks, direct current power distribution unit, Launcher Computer Control Unit with dummy circuit cards and a Missile Interface Module. The TLOTS also has an alternating current power distribution unit, Missile Round Pallet hydraulic controls, outrigger and stabilizer hydraulic controls and a missile umbilical junction box. All components are mounted on moveable tables. This training device allows Soldiers to perform tasks utilizing controls found on the actual THAAD launcher without the hazards and costs associated with the actual MEI. It supports training of march order, emplacement, load/unload missile round pallet procedures, safe to mate procedures, remove and replace maintenance procedures and the dual processor computer runs the current THAAD launcher software. Switches and indicators are synchronized to the dual Computer Processing Unit (CPU) to replicate task actions and indications and three-D graphic videos interface with the hydraulic controls and safety switches. The replicated internal carrier electronics module components allow for performance of remove and replace tasks without causing wear and tear on actual launcher hardware.

Other simulators include:

- **THAAD Table Top Trainer (TT3).** Lessons Observed from the Cold War, Operation Desert Storm, and Operation Iraqi Freedom, as well as the Korea and SWA rotations of Air Defense forces have shown a requirement for a fire control crew training capability that does not require the use of unit tactical equipment. This TT3 must complement the Embedded Training organic to the units utilizing training strategies designed to build the mental models required for effective Air Battle Management. In support of this, the TT3 will require connectivity to Synthetic Theater of War (STOW) environments using DIS and/or HLA protocols. It must be portable and ruggedized to allow units to deploy with the device anywhere in the world. It must also be able to be reconfigured to train any weapon system fire control crew that is within the unit and must be operated and maintained by organic unit personnel. This training capability shall facilitate training on tactical software for FO/EO to include defense design. It must replicate form, fit and function of the tactical system, and be upgraded concurrently with any tactical software or hardware upgrades.

- **Launcher Skills Trainer.** THAAD requires a capability to train enhanced operators/maintainers on THAAD Launcher operations, March Order, Emplacement, PMCS, maintenance, and troubleshooting tasks on an off system platform. This requirement is a result of analysis which shows that an embedded training capability, while a valuable tool on the Fire Control Systems, may not be the best path forward for the Launcher due to wear and tear on equipment, cost and the flexibility to train while the systems are in operations. This requirement may be satisfied through off system devices in the form of Computer Based Training (CBT), Interactive Multimedia Instruction (IMI) or similar innovations. This capability should allow for practice and graded training scenarios in the areas of operations, March Order, Emplacement, PMCS, maintenance, and troubleshooting that supports the Unit sustainment training mission while the systems are deployed and operating. It is envisioned that any software training developed may evolve to the application (APP) stage for use in smart devices such as portable media players, smart phones and tablets.

- **Radar Skills Trainer.** THAAD requires a capability to train enhanced operators/maintainers on THAAD Radar operations, March Order, Emplacement, PMCS, maintenance, and troubleshooting tasks on an off system platform. This requirement is a result of analysis which shows that an embedded training capability, while a valuable tool on the Fire Control Systems, may not be the best path forward for the Radar due to wear and tear on equipment, cost and the flexibility to train while the systems are in operations. This requirement may be satisfied through off system devices in the form of Computer Based Training (CBT), Interactive Multimedia Instruction (IMI) or similar innovations. This capability should allow for practice and graded training scenarios in the areas of operations, March Order, Emplacement, PMCS, maintenance, and troubleshooting that supports the Unit sustainment training mission while the systems are deployed and operating. It is envisioned that any software training developed may evolve to the application (APP) stage for use in smart devices such as portable media players, smart phones and tablets.

- **Cognitive Air Defense Training System (CAD-TS).** The CAD-TS will implement strategies formulated in Army Training XXI, Joint Vision (JV) 2020, Joint Functional Concepts, and the Business Management Modernization Program (BMMP). CAD-TS is the Army Air Defense Artillery's (ADA) primary instrument for developing adaptive leadership and higher-level cognitive skills. CAD-TS

capabilities will enable ADA officers in executing the warfighting operations described by the Battlespace Awareness, Joint Command and Control (C2), Force Application, Force Management, and Force Protection joint functional concepts. Joint functional areas include Strategic Deterrence, Major Combat Operations, and Stability Operations. CAD-TS will simulate the full range of ADA operations from Receipt of Mission through execution. CAD-TS will support immersive training in the cognitive and adaptive leadership skills required to successfully conduct Air and Missile Defense operations in the Contemporary Operational Environment (COE). Implementation of CAD-TS capabilities will allow the Army to keep pace with and take advantage of technological advances in virtual training and simulations to support Officer Education System (OES) Programs of Instruction (POI). Current capabilities of the CAD-TS include an Engagement Control Station Simulation (ECS2) to support the Field Training Exercise (FTX) in the Basic Officer Leader Course III (BLOC III), the Information Control Center (ICC) and Tactical Command System (TCS) simulating battery- and battalion-level command post operations and incorporation of an immersive, virtual reality, flat screen technology to simulate AMD field operations through the Brigade level. It is proposed to increase the capability of the system to include other ADA weapon system simulators such as the Terminal High Altitude Area Defense (THAAD) system. The system shall replicate with not less than 90% accuracy the appearance and functionality of the weapons systems being simulated. Because this system is not designed to train or reinforce basic system operational skills trained elsewhere, only those subsystems directly involved in the development and execution of the leader decision-making skills shall be fully operational. CAD-TS shall replicate with not less than 90% accuracy the operating environment of the weapons systems being simulated in a variety of terrains and be OneSAF Test bed Baseline (OTB) compliant. The system shall provide a user interface that supports instructor authoring training scenarios, the ability to insert friction points both prior to and during training events, provide After Action Review (AAR), and real-time overview capability for the Instructor/Observer. CAD-TS shall simulate classified and unclassified systems and operations, provide interface to receive and send communications to and from other elements of the Brigade commands and shall be in full compliance with Information Assurance requirements detailed in CJCSI 6510.01C, DoD Instruction 8510.bb, DoDI 8500.1, and DoDI 8500.2. The CAD-TS software is not a single program running on one computer, but a distributed system of seven major intercommunicating components running on several computers at once. The OTB component places and controls automated forces with standardized Artificial Intelligence (AI). The Simulation Controller (SimCtrl) component creates radar-track flight profiles of hostile and friendly aircraft and munitions. The Manstation Simulation component's function is to present tracks in

radar-screen format, along with tabbed pages for entering data and reading values, as well as having the ability to hook, label, and engage those tracks. The Image Generator (IG) component renders the "real" world version of the scenario, including the sources of the radar tracks, the simulated weapons system units, and the surrounding terrain. The Remoting Server component relays and records all intercommunication and actions. The AAR component records Protocol Data Units (PDU) and coordinates with the Remoting Server for playback. The World Wind component displays the scenario on a world scale with custom overlays and entity icons.

6.1.1.3.4 Simulations

Simulations . Models and simulations support the training capabilities of the soldiers using systems from the other three domains. There are primarily two ways they will accomplish this, in order of preference:

- **Embedded Simulations.** In many sustaining base, C4I and weapon systems, rapid leaps in technological capabilities will allow system developers to embed some simulator capability into weapons systems and to embed some simulation capability in sustaining base and C4I systems to allow students and operational staffs to train and rehearse locally.

- **Stand-alone Simulations.** Future simulations will be accessible on demand by commanders who want to train and/or rehearse in many sustaining base, C4I systems, or weapons systems linked through the synthetic environment. This can be simply on a single post or with units spread across thousands of miles.

- **Embedded Training (ET)(Instrumentation).** The THAAD system will use ET capabilities for operational/sustainment training during training and exercises. ET will also be used during training exercises on THAAD system hardware. Further augmentation of unit training will occur through the use of the embedded capability in the system software which simulates operational tactical battlefield information and provides unit operational/sustainment training to support both EO and FO. The ET allows operators, staff and commanders to maintain proficiency in tactical decision-making procedures and console operation procedures through air defense battle and in future THAAD fieldings, DIS networks.

- **TFCC Embedded Training.** The TFCC ET provides realistic operator and crew training using THAAD hardware and operational software. The ET Computer Software Configuration Item supports training of the Tactical Station Group (TSG) in both garrison and field environments. Training may be conducted using a TOS and LCS linked to form a single TSG operating in isolation. Also, this TSG used for training may operate linked with other TSGs, THAAD Radars,

launchers, lower tier AMD units, adjacent units, higher-echelon units, or multinational units. The selection of the ET mode may also operate concurrently with the operations mode. ET, when activated, starts a training session, or overlays the system's normal operational mode, to enter a training and assessment mode. ET cannot be permitted to interfere with actual system EO at any time. Fail-safe measures will prevent the transmission of messages and commands during ET that could result in unintentional launch, radar radiation, or damage to personnel and equipment.

Individual training for the Fire Control operator guides the soldier through hands-on practice in the use of Fire Control hardware, software, publications, and operator level fault detection and isolation software. Operator task training reinforces skills learned in training institutions and teaches advanced skills detailed in the applicable STPs, Crew Drills, and Combined Arms training Strategy.

ET capabilities also support multi-echelon collective training for THAAD combat crews, batteries, and joint training. During ET, operators interact with the system in the same manner as they would under actual combat conditions. Using simulations of THAAD equipment, lower-tier air defense elements, ADA TOCs, and threat Ballistic Missiles (BM) the ET software generates a high-fidelity simulation of force on force combat operations through interaction with the THAAD Fire Control software. ET allows the simultaneous processing and display of "live" targets and simulated BM targets. Training may be conducted within a single battery or concurrently with other THAAD batteries and AMD battalions. THAAD units may also participate in netted AMD training and joint training exercises through interface with DIS compliant simulations such as Synthetic Theater of War-Theater Missile Defense (STOW-TMD), Extended Air Defense Simulation (EADSIM), One Semi-Automated Force Objective System (OOS), War fighter

Simulation 2000 (WARSIM 2000) or other relevant prevailing SE
architectures. The ET shall be interoperable through the DIS/HLA to link
the LVC pieces of the training arena within the context of the COE.

With ET, the user shall be capable of generating new scenarios, modifying
existing training scenarios and loading training scenarios generated by
external sources from removable media. The system will be capable of
providing simulated Fire Control faults to support enhanced
operator/maintainer unit sustainment training. The system will allow input
during the development/testing of tactical scenarios and simulated
equipment faults to be used for training.

Through development, ET will also provide evaluation functions for defense
planning and rehearsal. Results of war games based on operator Measures of
Effectiveness (MOEs) and Measures of Performance (MOPs) will be provided
to adjust decisions and training during theater defense battle operations.

The THAAD system will interoperate with C4I systems, simulators and simulation
systems to train the unit. Through the development process, the THAAD system will be
linked to a networked training capability (functional embedded training) with Army
Battle Command Systems (ABCS) devices, to include the Global Command and Control
System-Army (GCCS-A) and/or other C4I devices as appropriate. It should also link
into the Family of Simulations (FAMSIM) training systems such as the War fighter
Simulation (WARSIM 2000) for training, rehearsals, and determining courses of
action. Every effort should be made to leverage SE Core technologies to train and
execute mission rehearsals in the SE and STOW environments. The ET will allow
enhanced operator/maintainers, commanders and staff to maintain proficiency in
tactical decision-making procedures and console operation procedures through air
defense battle Distributed Interactive Simulation (DIS) networks and will be High

Level Architecture (HLA) compliant. The ET must be interoperable through the STOW and/or other common/joint SE architecture to link the live, virtual, and constructive pieces of the training arena. "All defense technology projects and acquisition programs shall comply with the training requirements of DoD Instruction 5000.2 (reference (e)). Embedded training and distributed learning shall be considered as the first alternative. It shall function through a joint architecture using common standards within integrated live, virtual, and constructive training systems." (DoD Directive 1322.18, Sep 3, 2004.)

Simulations in support of THAAD must conform to the following criteria:

- Simulate operational data as available from actual data sources.
- ET must accuratley represent Launcher, Radar and Missile into the scenarios.
- ET must simulate other AMD systems in the BMDS to accuratley represent high fidelity training.
- Receive operational data from actual data sources.
- Integrate simulated and actual data.
- Present data to the operators, maintainers, leaders, and other users, by means of their normal operational equipment.

Require operators, maintainers, leaders, and other users to perform their job tasks and duties in response to data presented.

6.1.1.3.5 Instrumentation

Instrumentation. Through development, instrumentation will become available to monitor/record the actions of the THAAD command and control battery components as they enter and operate in communications nets. In order to operate with a training instrumentation system, THAAD will be compliant with the Army's Common Training Instrumentation Architecture (CTIA).

- **Embedded Training (ET).** The THAAD system will use ET capabilities for operational/sustainment training during training and exercises. ET will also be used during training exercises on THAAD system hardware. Further augmentation of unit training will occur through the use of the embedded capability in the system software which simulates operational tactical battlefield information and provides unit operational/sustainment training to support both EO and FO. The ET allows operators, staff and commanders to maintain proficiency in tactical decision-making procedures and console operation procedures through air defense battle and in future THAAD fieldings, DIS networks.

- **TFCC Embedded Training.** The TFCC ET provides realistic operator and crew training using THAAD hardware and operational software. The ET Computer Software Configuration Item supports training of the Tactical Station Group (TSG) in both garrison and field environments. Training may be conducted using a TOS and LCS linked to form a single TSG operating in isolation. Also, this TSG used for training may operate linked with other TSGs, THAAD Radars, launchers, lower tier AMD units, adjacent units, higher-echelon units, or multinational units. The selection of the ET mode may also operate concurrently with the operations mode. ET, when activated, starts a training session, or overlays the system's normal operational mode, to enter a training and assessment mode. ET cannot be permitted to interfere with actual system EO at any time. Fail-safe measures will prevent the transmission of messages and commands during ET that could result in unintentional launch, radar radiation, or damage to personnel and equipment.

Individual training for the Fire Control operator guides the soldier through hands-on practice in the use of Fire Control hardware, software, publications, and operator level fault detection and isolation software. Operator task training reinforces skills learned in training institutions

and teaches advanced skills detailed in the applicable STPs, Crew Drills, and Combined Arms training Strategy.

ET capabilities also support multi-echelon collective training for THAAD combat crews, batteries, and joint training. During ET, operators interact with the system in the same manner as they would under actual combat conditions. Using simulations of THAAD equipment, lower-tier air defense elements, ADA TOCs, and threat Ballistic Missiles (BM) the ET software generates a high-fidelity simulation of force on force combat operations through interaction with the THAAD Fire Control software. ET allows the simultaneous processing and display of "live" targets and simulated BM targets. Training may be conducted within a single battery or concurrently with other THAAD batteries and AMD battalions. THAAD units may also participate in netted AMD training and joint training exercises through interface with DIS compliant simulations such as Synthetic Theater of War-Theater Missile Defense (STOW-TMD), Extended Air Defense Simulation (EADSIM), One Semi-Automated Force Objective System (OOS), War fighter Simulation 2000 (WARSIM 2000) or other relevant prevailing SE architectures. The ET shall be interoperable through the DIS/HLA to link the LVC pieces of the training arena within the context of the COE.

With ET, the user shall be capable of generating new scenarios, modifying existing training scenarios and loading training scenarios generated by external sources from removable media. The system will be capable of providing simulated Fire Control faults to support enhanced operator/maintainer unit sustainment training. The system will allow input during the development/testing of tactical scenarios and simulated equipment faults to be used for training.

Through development, ET will also provide evaluation functions for defense planning and rehearsal. Results of war games based on operator Measures of Effectiveness (MOEs) and Measures of Performance (MOPs) will be provided to adjust decisions and training during theater defense battle operations.

6.1.1.4 Training Facilities and Land

Training Facilities and Land . Existing training facilities at the schools will be used wherever possible to support the THAAD system. The use of existing facilities could take advantage of infrastructure and possibly avoid new construction costs. Other required resources for facilities defined in the THAAD CPD and CTEA must be programmed and/or provided by Army/MDA through Military Construction (MILCON) funding. Every attempt to collocate schools near the THAAD Maintenance facility should be made for sharing tactical equipment, training devices and to accommodate maintenance/repair of equipment. THAAD classroom facilities must accommodate Classroom XXI requirements. The training facility to house the training devices and classrooms for THAAD training must conform to the THAAD training strategy. Ranges and maneuver areas must be sufficient in size to accommodate THAAD system deployment, operations and engagements.

6.1.1.4.1 Ranges

The THAAD missile system may require targets for live fire exercises. Frequency of live fire exercises and the quantity and type of training ammunition will be based on a combination of Operations Tempo (OPTEMPO) considerations, missile testing considerations, and suitable range availability. Efforts shall be made to the extent possible to use fielded THAAD units as the test battery to combine missile testing and live fire exercises. The THAAD system will use targets that are cost efficient and training effective. The targets should provide a realistic representation of the existing BM and projected threats; duplicate or replicate the time, movement, countermeasures, signatures (including number), exposure times, hit/kill indications; and provide a feedback/performance scoring capability. Targets should be environmentally nondestructive and support live missile firings. If using targets is found not cost effective for THAAD then simulated firing and engagement capabilities will be used.

6.1.1.4.2 Maneuver Training Areas (MTA)

THAAD equipment requires land that meets requirements for immediate access, unobstructed radar coverage, concealment, and site requirements for size firmness, and slope. The THAAD radar suite requires the most critical emplacement restrictions. Land requirements for the radar suite are an area of 110' by 110' with adequate firmness in order to support the radar suite. The land cannot to exceed a five percent slope (2.86 degrees) in slope. The figure below shows the layout of the THAAD radar suite equipment. THAAD also requires emplacement criteria in an area with enough clear space in front of the antenna element so as to prevent injury due to exposure to high levels of Radio Frequency (RF) as shown in the figure below.

6.1.1.4.3 Classrooms

THAAD institutional indoor training facilities will accommodate Classroom XXI requirements and. Facilities will be built considering any special security considerations for individual or classroom instruction to include access to SIPRNET. The table below lists facilities and dimensional estimates to support indoor and outdoor training requirements.

THAAD Institutional Training Facilities (Indoor)

Classroom XXI (10 ea)	SF	7,500
ICOFTs 2 ea .	SF	29,976.58
Instructor Area, Latrines, Hallways, etc.	SF	9,000
Contractor Logistics Support	SF	2,125

THAAD Institutional Training Facilities (Outdoor)

Hardstand Area	SF	83,645	**6.1.1.4.4 CTCs**
Missile Reload Area	SF	5,412	Not required, THAAD is a strategic asset and is not exercised at the Brigade and below level
Equipment Emplacement Area	SF	64,557	
Parking Area	SF	17,100	

6.1.1.4.5 Logistics Support Areas

Local Training Support Centers (TSC) for serviced areas must allocate storage space for TADSS that are signed out to a using unit for training. This would not apply to any TADSS that are part of a Table of Organization and Equipment (TOE).

6.1.1.4.6 Mission Training Complex (MTC)

Not required, THAAD is a strategic asset and is not exercised at the Brigade and below level

6.1.1.5 Training Services

DOTD will provide training support to THAAD elements by posting training products on the Central Army Registry (CAR).

6.1.1.5.1 Management Support Services

Fires Center of Excellence, Director of Training will manage courseware and distributed learning products through in-house course managers.

6.1.1.5.2 Acquisition Support Services

Development of IMI products, instructors for NET and training of replacement Soldiers will require contracts for support.

6.1.1.5.3 General Support Services

Reproduction of IMI media and TSPs, procurement of long-term maintenance and support services for TADSS after initial fielding period will be required.

6.1.2 Architectures and Standards Component

The THAAD training architecture must integrate the individual, operational, and self-development training domains into a near-seamless training environment that must envelope and nurture ADA Soldiers and leaders for their entire career. The interlinked training domains require a networked system of systems to support the institution, unit, home station, and deployed operational theaters. The advantage of integrated and networked LVC training environments is that it allows for the interlinking of the current, stove-piped training domains. The LVC environments must be fully integrated and networked to support ADA full-spectrum training. A deliberate linkage of these three environments with the THAAD architecture must be developed into an LVC environment that supports training of the Soldier on-demand, anywhere or anytime. The goal is a near-seamless integration of training environments to more realistically replicate the operational environment and provide a dynamic, standards-based training environment to support national security requirements across the full spectrum of operations.

6.1.2.1 Operational View (OV)

Operational View (OV) is classified see Appendix A of THAAD CPD.

6.1.2.2 Systems View (SV)

Systems View (SV) is classified see Appendix A of THAAD CPD

6.1.2.3 Technical View (TV)

Technical View (TV) is classified see Appendix A of THAAD CPD

6.1.3 Management, Evaluation, and Resource (MER) Processes Component

6.1.3.1 Management

Where possible THAAD will use existing facilities and support infrastructure. The staff training estimate in support of THAAD will focus on the most efficient use of existing resources and identify and quantify any expected shortfalls. Training development will focus on producing products that are capable of being used both in the institution and in the operational training domain and focused only on combat critical tasks. Training will incorporate the maximum use of simulations to mitigate cost and risk. Students and instructors will be routinely asked to evaluate training events and products to determine how best to improve the quality and efficiency of instruction and training events to provide the best quality training with the lease expenditure of resources.

6.1.3.1.1 Strategic Planning

Strategic Planning .The development and fielding of THAAD supports Army and Training Transformation and is consistent with the guidance found in the following documents:

- National Defense strategies
- Joint Vision 2020
- The Army Plan and other Service plans
- Future force documentation
- TRADOC supporting plan to the Army Transformation Campaign Plan (ATCP)

6.1.3.1.2 Concept Development and Experimentation (CD&E)

Concept Development and Experimentation (CD&E). A 10 month investigation by the House Government Operations subcommittee on Legislation and National Security concluded that there was little evidence to prove that the Patriot hit more than a few Scuds. Testimony before the House Committee on Government Operations by Professor Theodore Postol (a professor of Science, technology and National Security Policy at M.I.T.) The results of these studies are disturbing. They suggest that the Patriot's intercept rate during the Gulf War was very low. The evidence from these preliminary studies indicates that Patriot's intercept rate could be much lower than ten percent, possibly even zero." The Theater High-Altitude Area Defense (THAAD) system would provide extended coverage for a greater diversity and dispersion of forces and the capability to protect population centers. However, the principal additional capability provided by this system is its ability to deal with longer-range theater missile threats as they begin to emerge. THAAD also reduces the number of missiles that the lower-tier systems must engage and provides a shoot-look-shoot capability--the ability to engage incoming missiles more efficiently.

6.1.3.1.3 Research and Studies

Research and Studies . A number of studies have been conducted on THAAD training devices and training products. The THAAD TIA was the first training study to be conducted and looked at THAAD target audience and types of devices needed. The THAAD CTEA was conducted in 1997 and resulted in basic designs for unit and institutional training. In 1999 a THAAD Institutional Training Devices Trade Study was completed. In 2008 an update to that study is currently in progress. In support of the Institutional Training Base (ITB) a series of technical Interchange Meetings (TIM) and the Product Development Review (PDRs) and Critical Design Review (CDRs) have been conducted.

6.1.3.1.4 Policy and Guidance

Policy and Guidance .See TRADOC Regulation 350-70, DA Pamphlet 73-1, and Army Regulation 350-1.

6.1.3.1.5 Requirements Generation

Requirements Generation .Refer to the THAAD CPD for requirements generation.

6.1.3.1.6 Synchronization

Synchronization .Training development resources, manpower, and equipment will be available to support THAAD training support systems over its life cycle, following the guidance in LOGSA Pamphlet 700-3, Total Package Fielding; AR 700-142, Materiel Release, Fielding, and Transfer; and DA Pamphlet 700-142, Instructions for Materiel Release, Fielding, and Transfer. TNGDEV synchronization with MATDEV for NET, TADSS, and instruction for replacement Soldiers must be performed until such time as the Army stands up the institutional training for THAAD.

6.1.3.1.7 Joint Training Support

Joint Training Support .Through development, THAAD will possess the capability to participate in appropriate joint training exercises, tactical and simulated. THAAD will support most, if not all, the attributes articulated in the Joint Operations Concept such as fully integrating with the Joint Force; force tailoring within mission, enemy, terrain and weather, troops and support available, time available, civil considerations (METT-TC) constraints to support the combatant commands; participating in a net-centric environment fully integrated with Army and Joint forces linked with Joint sensors and other enablers to provide information necessary for full-spectrum training and operational considerations.

6.1.3.2 Evaluation

6.1.3.2.1 Quality Assurance (QA)

Quality Assurance (QA) .The Quality Assurance Office (QAO) will take an active role in evaluating NET and institutional/replacement training courses and activities to ensure the TSS fulfills requirements for quality training of THAAD Soldiers and leaders.

6.1.3.2.2 Assessments

6.1.3.2.3 Customer Feedback

Assessments .A Post Fielding Training Effectiveness Analysis (PFTEA) will be conducted within eighteen to twenty-four (18-24) months of the THAAD system Initial Operational Capability (IOC) to assess the effectiveness and efficiency of the total system training program after the completion of NET training.

6.1.3.2.4 Lessons Learned/After-Action Reviews (AARs)

The Army Lessons Learned Program is based on the Joint Lessons Learned Program phases of discovery, validation, integration, and evaluation. In the Army process, evaluation is changed to assessment. (See DA Pam 11-33)

       a. Discovery. The discovery phase covers from the determination that there is something that can be improved or learned to inputting or capturing that information in a collaborative environment for use by others. This can be where an individual Soldier sees something that may be improved and inputs that into JLLIS for use by others. Lessons learned organizations use collections in this phase to gather more information in an effort to identify trends, themes, or a widely prevalent situation affecting accomplishment of some aspect of the Army's mission..

       b. Validation. In the validation phase, analysts or others examine the input to determine if the observation is valid and others can adapt and apply it. If the answer is yes, the observation is valid and is a lesson or best practice that be integrated.

       c. Integration. Integration is the phase where a lesson or best practice may be adapted and applied. Units adapt lessons within training and operations to improve readiness and enhance effective operations. The institutional force integrates lessons into DOTMLPF-P requirements. At times, there are issues associated with a lesson that require discussion and resource decisions. The lesson will need to enter an issue resolution process to determine what changes need to be made and how they will be made. Lessons learned organizations use this phase for dissemination of lessons that can go directly to units and to work with the institutional force through issue resolution processes to integrate the lessons into DOTMLPF-P changes. This phase ends when solutions are implemented and the force begins using changes.

       d. Assessment. In the assessment phase, Soldiers observe implemented solutions during operations, exercises, or experimentation to determine if the changes met issue requirements. If the issue is not resolved, or only partially resolved, the issue may re-enter the integration phase. If the commander decides the lesson solution or best practice met the requirement or improved the unit's performance, the lesson is considered "learned" and documented as such in the JLLIS. DOTMLPF-P adjustments become the new baseline for action at the appropriate level of organization.

6.1.3.3 Resource

Resources . Military Construction Army (MCA) plus Operations and Maintenance, Army (OMA) and Other Procurement Army (OPA) tails. The purpose of OMA and OPA tails is to ensure critical support of MCA projects. They identify essential habitability items and operations equipment. Institutional requirements shown here do not include unknown BRAC-associated costs for future Net Fires Center.

Description	Appn	Amount	FY Required	$ Source
a. NetFiresCenter				
Classroom XXI:				
9 - Level 2 (20 Students)	OMA/OPA	$245K each	FY15	HQDA/PM
1 - Level 3 (20 Students)	OMA/OPA	$285K each	FY15	HQDA/PM
New Training Facility**	MCA	$37.1M	FY15	HQDA/PM
Facilities/ Class Furnishings	OMA	*	FY15	HQDA/PM

Information Infrastructure	OPA	*	FY15	HQDA/PM
Building Modifications	OMA	*	FY15	HQDA/PM
CATT/CCTT Development	OMA	$5.4M	FY15	HQDA/PM
b. OMEMS	TBD	TBD	TBD	TBD
** Multi-use facilities				
* Included in Facility cost.				

2. __Additional Equipment Requirements.__ (OPA Funded)

a. Fires Center	_	
	_	
__Tactical Equipment__	__BOIP Number__	__Number Required__

THAAD Radar Suite (Complete with prime movers)		1
Antenna Equipment Unit (AEU)	D047AE	1
Cooling Equipment Unit	D047AF	1
Electronics Equipment Unit (EEU)	D047AG	1
Prime Power Unit (PPU)	D047AH	1
NOTE: Due to costs, The Army has stated that a RTD will be an acceptable solution ILO tactical Radar		
THAAD Fire Control and Communications (TFCC)		1
Tactical Operation Station (TOS)	D047CC	2
Launch Control Station (LCS)	D047CB	2
Station Support Group (SSG)	D047CD	2
THAAD Portable Planner (TPP)	TBD	16
THAAD Launcher	D047AA	2

Missile Round Pallet	D047AC	2
Battery Logistics Operation Center (BLOC)	D047BF	1
Spares Transport Shelter (STS)	D047BG	1
Battery Support Center Trailer (BSCT)	D047BH	2
Mobile Support Truck (MST)	D047BF	2
NOTE: NEW BOIP in development for TFCC and Launcher		
TRAINING AIDS, DEVICES, SIMULATORS AND SIMULATIONS(TADSS)		
THAAD Table Top Trainer (TT3)	Z05241	2

Missile Round Trainer-WEIGHTED (MRT-W)	D047CE	8
Missile Round Trainer-UNWEIGHTED (MRT-U)	D047CF	8
Classroom EOD system Trainer (CEST)	D047CG	1
CEST is located at Joint EOD Center, Eglin AFB, FL		
Practical EOD System Trainer (PEST)	D047CH	1
PEST is located at Joint EOD Center, Eglin AFB, FL		
THAAD RADAR TRAINING DEVICE(RTD)		2
Antenna Equipment Unit (AEU)	Z05238	
Cooling Equipment Unit	Z05239	
Electronics Equipment Unit (EEU)	Z05249	
Prime Power Unit (PPU)	Z05240	
NOTE: While 1 ea RTD is required, 1 ea RTD will be proveded ILO a tactical Radar		

THAAD Institutional Conduct of Fire Trainer, (ICOFT)		2
THAAD System Operations Trainer (TSOT)	Z05246	24
THAAD Tactical Station Group-Part Task Trainer (TSG PTT)	Z05247 Z05244	3
THAAD Launcher Operations Trainer Station (TLOTS)	Z05245	3 EA
THAAD Radar Training Lab	Z05243 Z05250 Z05242 Z05251	2 EA

3. **Additional OMA Funding Requirements.** (TRADOC funding responsibility FY15+.)

Description	Appn/Amount	Freq	Req'd	Source

a. Training				
USAADASCH:				
Civilian Payroll	OMA/$384K	R	FY16	
Contract Maintenance	OMA/$800K	R	FY16	TRADOC-FY11+
Supplies/Equipment	OMA/$12K	R	FY16	TRADOC-FY11+
OMEMS:				
Civilian Payroll	OMA/$310K	R	FY20	TRADOC-FY11+

Contract Maintenance	OMA/$800K	R	FY20	TRADOC-FY11+
Supplies/Equipment	OMA/$12K			
b. Training Support				
USAADASCH:				
Civilian Payroll	OMA/$450K	R	FY16	TRADOC-FY11+
Printing	OMA/$6K	R	FY16	TRADOC-FY11+
Supplies/Equipment	OMA/$10K			
OMEMS:				

Civilian Payroll	OMA/$310K	R	FY20	TRADOC-FY11+
Printing	OMA/$5K	R	FY20	TRADOC-FY11+
Supplies/Equipment	OMA/$10K		FY16	
c. Base operations (BASOPS) -				
USAADASCH:				
Utilities	OMA/$250K	R	FY15	TRADOC-FY11+
In/Out Processing	OMA/$60K	R	FY15	TRADOC-FY11+
Information Management	OMA/$30K	R	FY15	

OMEMS:				
Utilities	OMA/$250K	R	FY15	TRADOC-FY11+
In/Out Processing	OMA/$60K	R	FY15	TRADOC-FY11+
Information Management	OMA/$30K	R	FY15	TRADOC-FY11+

Note: "R" is for recurring. Resources listed above are estimates of future costs.

Army and TRADOC have the responsibility to fund all operations costs after initial fielding +2 years. MDA remains responsible for funding life cycle system of the THAAD System.

TSS resource requirements for POM input are acquired through the ADA Campaign Plan CoC, STRAC CoC, Supportability WIPTs, and Cost Analysis Requirements Description (CARD) for life-cycle costs.

7.0 Operational Training Domain

1. Introduction

a. TRADOC Pam 525-8-3 and TRADOC Pam 525-3-0 with its central idea of operational adaptability, TRADOC Pam 525-8-2, and the Chief of Staff, Army guidance, *A Leader Development Strategy for a 21st Century Army.* Recent operations and anticipated persistent conflict puts greater demands on Soldiers and leaders to execute full-spectrum operations in complex, uncertain environments where decentralized operations put more responsibility at lower echelons. TRADOC PAM 525-8-3 10

b. Lessons from nearly a decade of conflict, anticipated challenges in the future OE, transition to the modular force, combined with opportunities resulting from rapid changes in information technologies, compel the Army to re-examine unit training. From that examination, the Army must devise a more comprehensive training environment that enables commanders and leaders to take increased responsibility for their unit training plan to meet required ARFORGEN readiness objectives. Building upon the current unit training environment (baseline) this chapter describes the key operational influences on the future training environment and how it must be constructed to drive adaptive, OE-based, unit training.

2 Operational influence on the training environment

While a number of factors influence training, the two major influences that define the future training environment are an operational environment comprised of complex, interrelated variables that will challenge leaders with conditions requiring the simultaneous execution of offensive, defensive, and stability or civil support operations; and the ARFORGEN synchronization of resources to unit training to attain required readiness levels.

3. The training environment and the Operating Environment (OE)

a. Though U.S. military forces are familiar with conflict, every war is different and experiences within wars vary based on circumstances. As described in the TRADOC operational environment white paper, the future OE is a period of dramatic and accelerating change, uncertainty, complexity, and persistent conflict. Adversaries can be expected to use the full range of options including every political, economic, informational, and military measure at their disposal. The threat is not

categorized easily; it is a combination of conventional and unconventional operations, fought by regular and irregular forces, criminals, and terrorists; probably within urban areas among human terrain.

b. There are eight variables which constitute the structure for studying the OE in any situation. They are political, military, economic, social, information, infrastructure, physical environment, and time (PMESII-PT). This structure aligns with Army doctrine but it is also applied using the adversary's perspective. Each variable is analyzed with attention to the effects each has on the others. This analysis is the basis for actions or training in any OE. Both institutional and operational training depend on proper use of PMESII-PT to ensure appropriate consideration of all aspects of the challenges that the individuals and units in training must overcome. Every PMESII-PT aspect within the training environment must replicate, as closely as practical, the same aspect in the environment within which the trained force might operate.

c. To understand the OE, one must understand the global drivers that affect the conditions and characteristics of potential OEs. The following seven global drivers are likely to have the most impact on current and future military operations, leader development, and training.

(1) Cultures, ideologies, social structures.

(2) Information and communications technology (social networks).TRADOC PAM 525-8-3
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(3) Globalization and economics (integration-isolation).

(4) Weapons of mass destruction (WMD) and/or weapons of mass effects.

(5) Science, technology, and engineering.

(6) Natural resources (energy, water, and food).

(7) Demographics (migration, age, and urban).

d. Future Army training must consider the combined impact of all of these drivers as the Army projects training requirements where future operations include protracted confrontation among state, nonstate, and individual actors that are willing to use violence to achieve political and ideological ends. While persistent conflict does not imply perpetual warfare, it does manifest itself in three of the critical dimensions of full-spectrum operations: as a contest of wills, through strategic engagement, and a contested cyber/electromagnetic dimension. This requires that leaders be aware of the varied and changing interest of adversaries and to

understand the OE more fully, including its drivers, if leaders are to achieve an appropriate appreciation of possible enemy actions within that environment. .

4. The training environment and ARFORGEN

a. Enabled through the Army enterprises, ARFORGEN is a comprehensive process that provides for the timely apportionment of resources to units to build toward readiness objectives (aim points) in preparation for anticipated missions and conditions. The ARFORGEN process recognizes that before units can successfully begin full-spectrum operations unit training, they must have sufficient time, people, and equipment. The Army empowers commanders and leaders by providing these resources when needed. Under ARFORGEN, a unit should achieve its readiness aim points to gain maximum benefit of its full-spectrum operations METL training.

b. To set the conditions for this to occur, the Army is organizing four functionally oriented core enterprises to collaboratively execute and improve the ARFORGEN process. The Readiness Core Enterprise is lead and responsible for efficiently managing and executing the ARFORGEN process, supported by the other core enterprises. The Human Capital Enterprise provides Soldiers, civilians, and leaders with the right skills at the right time so leaders can build teams to enable collective training. The Services and Infrastructure Core Enterprise supports units in ARFORGEN by providing critical services to support Soldiers and their families, and by delivering the network and training support required to execute unit full-spectrum operations METL training strategies. Likewise, the Materiel Enterprise must equip units to achieve the aim points and have new equipment fielding and new equipment training completed for units to start meaningful full-spectrum operations collective training. While not a core enterprise, the Training Support Enterprise (TSE) provides the critical mobile, adaptable, interoperable, and reconfigurable training support capabilities that are needed to enable commander and leader training strategies once the personnel and material resources are available to train.

7.1 Operational Training Concept and Strategy

Operational Training Concept and Strategy. The initial effort to identify the unit training concept for collective and sustainment training will be based on results of analyses, developmental testing, and lessons learned. Analyses of this data will be used to determine the required amount of collective training for unit proficiency and certification and what mix of TADSS and ET capabilities will supplement the use of tactical system hardware and software. The unit will conduct collective training and unit qualification following NET. To assist in this training, all components of the training system will be available for use, to include the multimedia TSP left with the unit following NET, system ET, and TADSS delivered with the system. NET/TSP products left with units will be used to support sustainment training. Units participating in training will develop unit plans based on FM 7-0, FM 7-1, STPs, Training Circulars (Crew Drills), Gunnery and Combined Arms Training Strategy to support METL requirements. This training prepares ADA soldiers, leaders, and units to fight as members of the integrated missile defense team and prepares them to execute the integrated missile defense mission without additional training or lengthy training adjustment periods.

The THAAD system, through development, will interoperate with C4I systems, simulators and simulation systems to train the unit. The THAAD system will be linked to a networked training capability (functional embedded training) with Army Battle Command Systems (ABCS) devices, to include the Global Command and Control System-Army (GCCS-A) and other C^4I devices as appropriate. It should also link into the Family of Simulations (FAMSIM) training systems such as the WARSIM 2000 and/or other relevant SE architectures for training, rehearsals, and determining courses of action. Every effort should be made to leverage SE Core technologies to train and execute mission rehearsals in the common/joint architectures for SE and STOW environments. The ET will allow enhanced operator/maintainers, commanders, and staff to maintain proficiency in tactical decision-making procedures and console operation procedures through air defense battle and Distributed Interactive Simulation (DIS) networks and will be High Level Architecture (HLA) compliant. The ET must be interoperable through the STOW and/or other common/joint architecture to link the live, virtual, and constructive pieces of the training arena.

Reinforcement and sustainment training for THAAD Soldiers will primarily be accomplished through system-embedded training. The C2 component ET capability will provide the link which will allow training on the principles and functional theory of BMDS joint and theater operations and integration, both vertically and

horizontally, of the THAAD TFCC C2 capability to Army and joint services. Training will be conducted in both peacetime and mobilization environments.

Tactical equipment with ET, TADSS and Training Support Packages (TSPs) will be the principle means of initial collective and sustainment training at the unit. Lessons learned from established Patriot operational units have underscored the requirement for a desktop training capability to supplement training on tactical equipment. Often times the tactical system equipment is unavailable for training due to mission obligations or maintenance procedures and required training can be performed with desktop training devices during these times. A THAAD Table Top training (TT3) device is advantageous for training new crewmembers and for crew sustainment training to supplement training on tactical equipment (see section 6.1.1.3.2).

The unit will be provided exportable training products that are timely, complete, accurate, effective, and easy to implement.

7.1.1 Product Lines

Product Lines. Training products for THAAD are the NET products developed for THAAD Battery fielding that will be eventually refined and approved for institutional use.

- Courseware/Courses
  - THAAD Fire Control Enhanced Operator/Maintainer Course
  - THAAD Launch Control Station Enhanced Operator/Maintainer Course
  - THAAD Radar Enhanced Operator/Maintainer Course
  - THAAD Prime Power Unit Enhanced Operator/Maintainer Course
  - THAAD Launcher Enhanced Operator/Maintainer Course
  - THAAD System Administrators Course
  - THAAD Staff Planners Course
  - THAAD Technical Orientation Course

- Training Publications
  - STP 44-14E14-SM-TG, Patriot and THAAD Fire Control Enhanced Operator/Maintainer
  - STP 44-14J14-SM-TG, C4I Tactical Operations Center Enhanced Operator/Maintainer
  - STP 44-14T14-SM-TG, Patriot and THAAD Launcher Enhanced Operator/Maintainer
  - TC 3.01.92 THAAD Gunnery
  - TC 44-693-10, THAAD Radar Crew Training
  - TC 44-693-11, THAAD Launcher and Tactical Reload Training
  - TC 44-693-12, THAAD Fire Controll and Communications Crew Training
  - ATP 3-01.91, THAAD Operations
  - THAAD Combined Arms Training Startegy (CATS)

- Training Support Packages
  - THAAD Fire Control Operator/Maintainer Course (043-14E10/20)
  - THAAD Launch Control Station (LCS) Operator/Maintainer

Course (043-14H10/20)
- THAAD Launcher Operator/Maintainer Course (043-14T10/20)
- THAAD Follow-on Course (4F-F45)(14A)
- THAAD TFCCRadar Maintainer Course (4F-F47)(140E)
- THAAD LCS Systems Integrator Course (4F-F46)(140A)

- Training Devices
  - THAAD Table Top Trainer (TT3)
  - THAAD Missile Round Trainers (MRTs)
  - TFCC Embedded Training (ET)
  - Netted Embedded Training
  - Launcher Skills Trainer
  - Radar Skills Trainer

7.1.1.1 Training Information Infrastructure

Training Information Infrastructure . The training information infrastructure consists of hardware, software, and communications systems. These provide for local and global network infrastructures to facilitate the management, dissemination, and delivery of training product information. The THAAD interconnecting hardware, software, and communications systems will conform to both Joint and Army training architectures. Future THAAD development must provide for networked embedded training capability to participate in joint training exercises and the capability to receive simulated track information as well as command and control information over C4I networks.

7.1.1.1.1 Hardware, Software, and Communications Systems

Hardware, Software, and Communications Systems .The use of state-of-the-art distance learning capabilities (IAW TRADOC Reg 350-70) shall provide the capability to enhance and sustain Army readiness by delivering standardized training to soldiers and units at the right place and time using multiple delivery means and techniques. This will be accomplished by leveraging technology and training design efficiencies to provide more cost effective and efficient training. It is envisioned that THAAD will use dL in training all systems operations. Training sites, connectivity, software, hardware, and Internet access capabilities must be considered. The most commonly used dL delivery techniques are:

- Simulation - Any representation or imitation of reality (abstract) and includes simulating part of a system, the operation of a system, and the environment in which the system will operate.

- Distributed Interactive Simulation - DIS is linking all types of unit training into the same network permitting wide-scale integration of various simulation systems and live training without regard to geographic limitations.

- Embedded Training Systems - ET provides the capability to train a soldier to standard using embedded training capabilities contained in operational equipment. The goal is that ET will be interoperable within a common operating environment linking geographically separated units in live, virtual, and constructive simulation. It provides users assistance by embedded simulation, emulation or simulation capability, embedded connections between the prime system and the training system and training instrumentation.

It is important to note that wherever and whenever possible ET capabilities will be used. The focus of this strategy is to ensure training can be accomplished at unit locations in real-time without relying on non-unit resources. THAAD ET, through development, shall provide interfaces that allow interoperability within the Army Integrated Air and Missile Defense (AIAMD) System of Systems (ASoS), the Ballistic Missile Defense System (BMDS) Distributed Multi-echelon Training System (DMeTS), TADSS, and synthetic training environments emulating the COE. It will be comprised of common/joint architecture that leverages LVC capabilities to the greatest extent

possible are compatible with Joint LVC capabilities and environments. Through development, THAAD must be linked to a networked training capability (functional embedded training) with the Battlefield Command Systems (BCS) capability, to include the prevailing SE architectures and other C4I capabilities as described in the Training Concept/Strategy section of this STRAP and the ASoS CDD paragraph 13. THAAD shall be able to interface with LVC training domains. It should link to these SE architectures to support unit training, rehearsals, and courses of action development. Units must have the capability to train tasks necessary to ensure skills and proficiencies match operational requirements.

7.1.1.1.2 Storage, Retrieval, and Delivery

Storage, Retrieval, and Delivery . The institutions, units and individuals will use official Department of the Army (DA) publications and forms (see below) to access approved FM, ATP, STP and TCs for THAAD. Official Department of the Army (DA) publications are managed by the Army Publishing Directorate (APD) under the direction of the Administrative Assistant to the Secretary of the Army (AASA). The Army uses the latest publishing technologies to produce high-quality, enhanced, electronic publications and forms.

7.1.1.1.3 Management Capabilities

Management Capabilities .The FKN contains an infrastructure platform through which learning content is delivered and managed. It consists of a combination of hardware and software tools that perform a variety of functions related to sustainment and reach-back training. The FKN will manage the training content available. Unit-level management is required to determine what content will be used for operational unit sustainment or refresher training for the Soldiers.

7.1.1.1.4 Other Enabling Capabilities

Other Enabling Capabilities .Interactive Electronic Technical Manuals (IETMs), STPs, and IMI exportable TSPs will be available through the resources discussed in paragraph 7.1.1.1.2 and will be accessible through the embedded training functionality of the system equipment in future development. The THAAD enhanced operator/maintainers, through a combination of individual and collective tasks are trained to the skill levels required to operate and maintain the THAAD system. This will include using dL, DIS, and STOW-type capabilities. The training standards for the Standards in Training Commission (STRAC) will be outlined in DA PAM 350-38 Standards in Weapons Training when developed. THAAD training device programmed growth will allow interaction with the ASoS, Ballistic Missile Defense System (BMDS) Distributed Multi-echelon Training System (DMeTS) and will provide the training capability to perform inter-operability functions. Integrated training with other joint and combined arms units training will transfer continuity to the battlefield for situational awareness and will support Joint, Army and Air Defense doctrine.

7.1.1.2 Training Products

Training Products . Operational training will require training publications, TSPs, ET and TADSS to support the THAAD system. The ET and TADSS will be realistic in form, fit, and function and replicate the system's hardware, software, and operational functions.

7.1.1.2.1 Courseware

Courseware .ICW available on FKN may be used at the operational training level to enhance sustainment or refresher training for THAAD Soldiers.

7.1.1.2.2 Courses

Course Name	Course Number
Initial Military Training	
NOT ANTICIPATED	

Professional Military Education (PME)

Functional And ASI

Mobilization	

7.1.1.2.3 Training Publications

Training Publications .The same training publications that were used for the institutional training section are applicable for the operational training section. (See 6.1.1.2.3)

7.1.1.2.4 TSP

Product Lines. Training products for THAAD are the NET products developed for THAAD Battery fielding that will be eventually refined and approved for institutional use.

- Training Support Packages
  - THAAD Fire Control Operator/Maintainer Course (043-14E10/20)
  - THAAD Launch Control Station (LCS) Operator/Maintainer Course (043-14H10/20)
  - THAAD Launcher Operator/Maintainer Course (043-14T10/20)
  - THAAD Follow-on Course (4F-F45)(14A)
  - THAAD TFCCRadar Maintainer Course (4F-F47)(140E)
  - THAAD LCS Systems Integrator Course (4F-F46)(140A)

- Courseware/Courses
  - THAAD Fire Control Enhanced Operator/Maintainer Course
  - THAAD Launch Control Station Enhanced Operator/Maintainer Course
  - THAAD Radar Enhanced Operator/Maintainer Course
  - THAAD Prime Power Unit Enhanced Operator/Maintainer Course
  - THAAD Launcher Enhanced Operator/Maintainer Course
  - THAAD System Administrators Course
  - THAAD Staff Planners Course
  - THAAD Technical Orientation Course

- Training Publications
  - STP 44-14E14-SM-TG, Patriot and THAAD Fire Control Enhanced Operator/Maintainer
  - STP 44-14J14-SM-TG, C4I Tactical Operations Center Enhanced Operator/Maintainer
  - STP 44-14T14-SM-TG, Patriot and THAAD Launcher Enhanced

Operator/Maintainer

- TC 3.01.92 THAAD Gunnery
- TC 44-693-10, THAAD Radar Crew Training
- TC 44-693-11, THAAD Launcher and Tactical Reload Training
- TC 44-693-12, THAAD Fire Controll and Communications Crew Training
- ATP 3-01.91, THAAD Operations
- THAAD Combined Arms Training Startegy (CATS)

7.1.1.3 TADSS

TADSS . The operational unit will use THAAD system hardware and TADSS, in addition to embedded training capabilities, for sustainment training and during training exercises. Further augmentation of sustainment training will occur through the use of an embedded scenario generation capability in the system software which simulates operational tactical battlefield information and provides unit sustainment training to support both EO and FO. TADSS requirements in the operational training domain for the THAAD system consist of the following:

- Embedded Training (ET).
- Missile Round Trainer (MRT).
- MRT with Missile Round Pallet (MRP).
- THAAD Table Top Trainer (TT3)
- Radar Skills Trainer (RST)
- Launcher Skills Trainer (LST)
- Netted ET

Type TADSS to be Considered for CATS	
Gunnery	System ET, TT3, RTD
Maneuver	MRP, RTD

EOD	CEST, PEST
Embedded Training Software	System ET, RST, LST
IMI	TSPs for NET/Sustainment training
Maintenance Training	IMT and System ET, RST, LST
Operations Training	
Tactical Operations	System ET and TT3
Engagement Operations	System ET and TT3
Force Operations	System ET and TT3
Joint Operations	System ET and TT3, Netted ET
Defense Planning	System ET and TT3
Networked Simulator or Simulation	TFCC ET, TT3, Netted ET
Distance Learning Capability (dLC)	TFCC, Launcher, RTD, and TT3

Computer-Based Training (CBT)	TFCC, Launcher, RTD, and TT3
Web-Based Training (WBT)	TFCC, Launcher, RTD, and TT3
High Level Architecture (HLA)	TFCC, Launcher, RTD, and TT3, Netted ET
Interactive Electronic Technical Manuals (IETM)	TFCC, Launcher, RTD, and TT3
Interactive CD ROM Capability	TFCC, Launcher, RTD, and TT3

7.1.1.3.1 Training Aids

Training Aids .(See 6.1.1.3.1)No training aids are planned for operational unit training. Training aids for THAAD are institutional level training aids and are used at the EOD School.

7.1.1.3.2 Training Devices

Training Devices .

- **Missile Round Trainer (MRT).** (Details in Para 6.1.1.3.2)
- **THAAD Table Top Trainer (TT3).**

7.1.1.3.3 Simulators

- **THAAD Table Top Trainer (TT3).** (See 6.1.1.3.3)

- **Launcher-Skills Trainer.** THAAD requires a capability to train enhanced operators/maintainers on THAAD Launcher, March Order, Emplacement, CS, maintenance, and troubleshooting tasks on an off system platform. This requirement is a result of analysis which shows that an embedded training capability, while a valuable tool on the Fire Control Systems, may not be the best path forward for the Launcher and Radar due to wear and tear on equipment, cost and the flexibility to train while the systems are in operations. This requirement may be satisfied through off system devices in the form of Computer Based Training (CBT), Interactive Multimedia Instruction (IMI) or similar innovations. This capability should allow for practice and graded training scenarios in the areas of operations, March Order, Emplacement, PMCS, maintenance, and troubleshooting that supports the Unit sustainment training mission while the systems are deployed and operating. It is envisioned that any software training developed may evolve to the application (APP) stage for use in smart devices such as portable media players, smart phones and tablets.

- **Radar Skills Trainer.** THAAD requires a capability to train enhanced operators/maintainers on THAAD Radar, PMCS, maintenance, and troubleshooting tasks on an off system platform. This requirement is a result of analysis which shows that an embedded training capability, while a valuable tool on the Fire Control Systems, may not be the best path forward for the Radar due to wear and tear on equipment, cost and the flexibility to train while the

systems are in operations. This requirement may be satisfied through off system devices in the form of Computer Based Training (CBT), Interactive Multimedia Instruction (IMI) or similar innovations. This capability should allow for practice and graded training scenarios in the areas of operations, March Order, Emplacement, PMCS, maintenance, and troubleshooting that supports the Unit sustainment training mission while the systems are deployed and operating. It is envisioned that any software training developed may evolve to the application (APP) stage for use in smart devices such as portable media players, smart phones and tablets.

- ET is not a separate training device but is a software capability in the tactical equipment. ET is a capability built into, added onto, or connected to operational systems. It enables training delivery to soldiers using their own equipment while in the field or at home station. It will not adversely impact the operational requirements or capabilities of the system and shall be identified early on to be incorporated into initial prototype design. It includes embedded user assistance, embedded simulation capability, embedded connections for attachment of appended training simulations, simulators and training instrumentation. ET includes system design allowing dual use of communication and instrumentation capability for training and tactical use and the use of system operating controls with appended/embedded training simulations. It can also provide a mechanism for interactive access, feedback, storage, and dissemination of lessons learned as they occur. Specific requirements for Embedded Training Capabilities and TADSS available for Unit training are as follows:

  - **Embedded Training in the system** . ET is a capability hosted in the TFCC

and all THAAD MEI tactical HW and SW in future development and integrated into the overall THAAD configuration. The ET will utilize THAAD tactical SW and supports training, assessment, and control of exercises on the operational equipment, with auxiliary equipment and data sources, as necessary. ET, when activated, starts a training session, or overlays the system's normal operational mode, to enter a training and assessment mode. ET cannot be permitted to interfere with actual system EO at any time. This is necessary to prevent accidental launch of a THAAD missile during training and to preclude operational interdiction. ET shall function through a joint architecture using common standards within integrated LVC training systems (DOD Directive 1322.18, Military Training, 3 Sep 04). ET and TADSS will be used extensively for unit operational/sustainment training during training exercises. Sustainment training will also be conducted via ET capabilities on THAAD system hardware. The ET shall allow operators to maintain proficiency in tactical decision-making procedures and Fire Control (FC) console operations through air defense battle procedures using DIS/HLA networks. With TFCC ET, the user shall be capable of generating new scenarios, modifying existing training scenarios and loading training scenarios generated by external sources from removable media. ET provides the ability to train a task(s) using TFCC equipment. It shall not adversely impact the operational capabilities of the system. ET requirements must be identified as an essential operational capability during system development.

- **TFCC Embedded Training** . The TFCC provides realistic operator and crew training using THAAD hardware and operational software. The embedded training Computer Software Configuration Item (CSCI) supports training of Engagement Operations and Force Operations for the THAAD system in both

garrison and field environments. Training may be conducted using a TOS and LCS linked to form a single Tactical Station Group (TSG) operating in isolation. Also, this TSG used for training may operate linked with other TSGs, THAAD radars, launchers, lower tier Theater Missile Defense (TMD) units, adjacent units, higher-echelon units, or multinational units. The selection of the ET mode may also operate concurrently with the operations mode. Fail-safe measures will prevent the transmission of messages and commands during ET that could result in unintentional launch, radar operation, or damage to personnel and equipment. Individual training for the TFCC operator guides the soldier through hands-on practice in the use of TFCC hardware, software publications, and operator level fault detection and isolation software. Operator task training reinforces skills learned in training institutions and teaches advanced skills detailed in the applicable STPs, in the Crew Drills and TSPs. Embedded training capabilities also support multi-echelon collective training for THAAD combat crews within the battery, as part of Air and Missile Defense Task Forces (AMDTF) and in joint environments. During ET, operators interact with the system in the same manner as they would under actual combat conditions. Using simulations of THAAD equipment, lower-tier air defense elements, ADA TOCs and threat TBMs, the embedded training software generates a high-fidelity simulation of force on force combat operations through interaction with the TFCC software. ET allows the simultaneous processing and display of "live" targets and simulated TBM targets. Training may be conducted within a single battery, or concurrently with other THAAD batteries. THAAD units may also participate in netted Air Defense Combined Arms Tactical Training (ADCATT) and joint training exercises through interface with DIS compliant simulations such as Synthetic Theater of War-Theater Missile Defense (STOW-TMD), Extended Air Defense Simulation (EADSIM), and War fighter Simulation 2000 (WARSIM 2000) or other common/joint simulation technology. ET also provides

evaluation functions for defense planning and rehearsal. Results of war
games based on operator Measures of Effectiveness (MOEs) and Measures of
Performance (MOPs) are provided to adjust decisions and training during
theater defense battle operations.

TACTICAL EQUIPMENT WITH EMBEDDED TRAINING CAPABILITY				
PURPOSE/FUNCTION	*ET CATEGORY*	*NET*	*INSTITUTION*	*UNIT*
TFCC				
Crew Operations	A, B, C, D	X	X	X
Enhanced Operator/Maintainer Functions	A, B	X	X	X
Engagement Operations	A, B, C, D	X	X	X
Force Operations	A, B, C, D	X	X	X
TFCC Operations	A, B, C, D	X	X	X
Radar Operations	A, B, C	X	X	X

Launch Operations	A, B, C	X	X	X
Evaluation Function	A, B, C, D	X	X	X
CATS	A, B, C, D	X	X	X

Embedded Training Capability

Note: ET Categories: There are four embedded training categories based on the level of training to be fulfilled. They are aligned along the training spectrum from individual to collective tasks for the TFCC, radar, and launcher.

Category A: Individual/Operator. The objective of Category A is to train and sustain individual operator and maintenance task skills.

Category B: Crew/Team. The objective of Category B is to train and sustain combat ready crews and teams. This category builds on individual skills acquired from Category A.

Category C: Functional. The objective of Category C is to train and sustain commanders, staffs, and crews/teams within each functional area to be utilized within their operational role.

Category D: Force Level/Combined Arms and Battle Staff. The objective of Category D is to train and sustain combat ready commanders and battle staffs utilizing the operational system in its operational role.

7.1.1.3.4 Simulations

Simulations . (See 6.1.1.3.4)The simulations are the same as those used in the institutional training section. Capabilities and Limitations briefs are available on request for those entities with a need to know and or exercise the system in a virtual environment.

7.1.1.3.5 Instrumentation

Instrumentation . .. Extensive use of ET and TADSS in the THAAD system will facilitate sustainment training during training exercises. Sustainment training will also be conducted during training exercises on THAAD system hardware. The ET will allow operators to maintain proficiency in tactical decision-making procedures, console, and major end item operations through air defense battle and Distributed Interactive Simulation (DIS) networks as capabilities mature through the development process. The ET must be interoperable through the HLA/DIS and the common/joint SE architectures to link the live, virtual, and constructive pieces of the training.

- **Embedding Training in Operational Systems.** Embedded training can be implemented in four broad categories of systems. They are Sustaining Base and Office Automation, C4I, Weapons Systems, and Models & Simulations. Each category is a Common Operating Environment (COE) domain and will be interoperable with the other domains as part of the Defense Information Infrastructure (DII) COE.

- **Weapons Systems.** Embedded training in weapons systems will consist primarily of individual and crew/team training. This includes visual and audio cues that will shorten the initial and sustainment training time required. It also includes embedded simulators that can train some or most of the critical tasks for that weapon system. In some cases it will also include embedded links to the other domains such as other combined arms systems having an embedded simulation capability.

It is important to note that wherever and whenever possible ET capabilities will be used. The focus of this strategy is to ensure training can be accomplished at unit locations in real-time without relying on non-unit resources. As development capabilities mature, THAAD ET shall provide interfaces that allow interoperability within the ASoS, with TADSS, and with synthetic training environments that includes LVC simulations/simulators that can emulate the COE. THAAD must be linked to a networked training capability (functional embedded training) with the Battlefield Command Systems (BCS) capability, to include the common/joint SE architectures and other C4I capabilities as described in the Training Concept/Strategy section of this STRAP and the ASoS CDD paragraph13. THAAD shall be able to interface with LVC training domains. It should link to the common/joint SE architectures to support unit training, rehearsals, and courses of action development. Units must have the capability to train tasks necessary to ensure skills and proficiencies match operational requirements. Specific TADSS and ET capabilities requirements are covered in the appropriate TADSS paragraphs that follow.

ET is not a separate training device but is a software capability in the tactical equipment. ET is a capability built into, added onto, or connected to operational systems. It enables training delivery to soldiers using their own equipment while in the field or at home station. It will not adversely impact the operational requirements or capabilities of the system and shall be identified early on to be incorporated into initial prototype design. It includes embedded user assistance, embedded simulation capability, embedded connections for attachment of appended training simulations, simulators and training instrumentation. ET includes system design allowing dual use of communication and instrumentation capability for training and tactical use and the use of system operating controls with appended/embedded training simulations. It can also provide a mechanism for

interactive access, feedback, storage, and dissemination of lessons learned as they occur. Specific requirements for Embedded Training Capabilities and TADSS available for Unit training are as follows:

- **Embedded Training in the system** . ET is a capability hosted in the TFCC and all THAAD MEI tactical HW and SW in future development and integrated into the overall THAAD configuration. The ET will utilize THAAD tactical SW and supports training, assessment, and control of exercises on the operational equipment, with auxiliary equipment and data sources, as necessary. ET, when activated, starts a training session, or overlays the system's normal operational mode, to enter a training and assessment mode. ET cannot be permitted to interfere with actual system EO at any time. This is necessary to prevent accidental launch of a THAAD missile during training and to preclude operational interdiction. ET shall function through a joint architecture using common standards within integrated LVC training systems (DOD Directive 1322.18, Military Training, 3 Sep 04). ET and TADSS will be used extensively for unit operational/sustainment training during training exercises. Sustainment training will also be conducted via ET capabilities on THAAD system hardware. The ET shall allow operators to maintain proficiency in tactical decision-making procedures and Fire Control (FC) console operations through air defense battle procedures using DIS/HLA networks. With TFCC ET, the user shall be capable of generating new scenarios, modifying existing training scenarios and loading training scenarios generated by external sources from removable media. ET provides the ability to train a task(s) using TFCC equipment. It shall not adversely impact the operational capabilities of the system. ET requirements must be identified as an essential operational capability during system development.

- **TFCC Embedded Training** . The TFCC provides realistic operator and crew training using THAAD hardware and operational software. The embedded training Computer Software Configuration Item (CSCI) supports training of Engagement Operations and Force Operations for the THAAD system in both garrison and field environments. Training may be conducted using a TOS and LCS linked to form a single Tactical Station Group (TSG) operating in isolation. Also, this TSG used for training may operate linked with other TSGs, THAAD radars, launchers, lower tier Theater Missile Defense (TMD) units, adjacent units, higher-echelon units, or multinational units. The selection of the ET mode may also operate concurrently with the operations mode. Fail-safe measures will prevent the transmission of messages and commands during ET that could result in unintentional launch, radar operation, or damage to personnel and equipment. Individual training for the TFCC operator guides the soldier through hands-on practice in the use of TFCC hardware, software publications, and operator level fault detection and isolation software. Operator task training reinforces skills learned in training institutions and teaches advanced skills detailed in the applicable STPs, in the Crew Drills and TSPs. Embedded training capabilities also support multi-echelon collective training for THAAD combat crews within the battery, as part of Air and Missile Defense Task Forces (AMDTF) and in joint environments. During ET, operators interact with the system in the same manner as they would under actual combat conditions. Using simulations of THAAD equipment, lower-tier air defense elements, ADA TOCs and threat TBMs, the embedded training software generates a high-fidelity simulation of force on force combat operations through interaction with the TFCC software. ET allows the simultaneous processing and display of "live" targets and simulated TBM targets. Training may be conducted within a single battery, or concurrently with other THAAD batteries. THAAD units may also participate in netted Air Defense Combined Arms Tactical Training (ADCATT) and joint training exercises through interface with DIS compliant simulations such as Synthetic Theater of War-Theater Missile Defense

(STOW-TMD), Extended Air Defense Simulation (EADSIM), and War fighter Simulation 2000 (WARSIM 2000) or other common/joint simulation technology. ET also provides evaluation functions for defense planning and rehearsal. Results of war games based on operator Measures of Effectiveness (MOEs) and Measures of Performance (MOPs) are provided to adjust decisions and training during theater defense battle operations.

- **Radar / Launcher-Skill Sustainment Training.** THAAD requires a capability to train enhanced operators/maintainers on THAAD Radar, Launcher and Fire Control operations, March Order, Emplacement, PMCS, maintenance, and troubleshooting tasks on an off system platform. This requirement is a result of analysis which shows that an embedded training capability, while a valuable tool on the Fire Control Systems, may not be the best path forward for the Launcher and Radar due to wear and tear on equipment, cost and the flexibility to train while the systems are in operations. This requirement may be satisfied through off system devices in the form of Computer Based Training (CBT), Interactive Multimedia Instruction (IMI) or similar innovations. This capability should allow for practice and graded training scenarios in the areas of operations, March Order, Emplacement, PMCS, maintenance, and troubleshooting that supports the Unit sustainment training mission while the systems are deployed and operating. It is envisioned that any software training developed may evolve to the application (APP) stage for use in smart devices such as portable media players, smart phones and tablets.

TACTICAL EQUIPMENT WITH EMBEDDED TRAINING CAPABILITY

PURPOSE/FUNCTION	ET CATEGORY	NET	INSTITUTION	UNIT
TFCC				
Crew Operations	A, B, C, D	X	X	X
Enhanced Operator/Maintainer Functions	A, B	X	X	X
Engagement Operations	A, B, C, D	X	X	X
Force Operations	A, B, C, D	X	X	X
TFCC Operations	A, B, C, D	X	X	X
Radar Operations	A, B, C	X	X	X
Launch Operations	A, B, C	X	X	X
Evaluation Function	A, B, C, D	X	X	X
CATS	A, B, C, D	X	X	X

Embedded Training Capability

Note: ET Categories: There are four embedded training categories based on the level of training to be fulfilled. They are aligned along the training spectrum from individual to collective tasks for the TFCC, radar, and launcher.

Category A: Individual/Operator. The objective of Category A is to train and sustain individual operator and maintenance task skills.

Category B: Crew/Team. The objective of Category B is to train and sustain combat ready crews and teams. This category builds on individual skills acquired from Category A.

Category C: Functional. The objective of Category C is to train and sustain commanders, staffs, and crews/teams within each functional area to be utilized within their operational role.

Category D: Force Level/Combined Arms and Battle Staff. The objective of Category D is to train and sustain combat ready commanders and battle staffs utilizing the operational system in its operational role.

7.1.1.4 Training Facilities and Land

Training Facilities and Land .Ranges and maneuver areas must be sufficient in size to accommodate THAAD system deployment, operations and engagements.

7.1.1.4.1 Ranges

Ranges .The THAAD missile system may require targets for live fire exercises. Frequency of live fire exercises and the quantity and type of training ammunition will be based on a combination of OPTEMPO considerations, missile testing considerations, and suitable range availability. Efforts shall be made to the extent possible to use operational THAAD units as the test battery to combine missile testing and live fire exercises. The THAAD system will use targets that are cost efficient and training effective. The targets should provide a realistic representation of the existing BM and projected threats; duplicate or replicate the time, movement, countermeasures, signatures (including number), exposure times, hit/kill indications; and provide a feedback/performance scoring capability. Targets should be environmentally nondestructive and support live missile firings. If using targets is found not cost effective for THAAD then simulated firing and engagement capabilities will be used.

7.1.1.4.2 Maneuver Training Areas (MTA)

Maneuver Training Areas (MTA) .THAAD equipment requires land that meets requirements for immediate access, unobstructed radar coverage, concealment, and site requirements for size firmness, and slope. The THAAD radar suite requires the most critical emplacement restrictions. Land requirements for the radar suite are an area of 110' by 110' with adequate firmness in order to support the radar suite. The land cannot to exceed a five percent slope (2.86 degrees) in slope. The figure below shows the layout of the THAAD radar suite equipment. THAAD also requires emplacement criteria in an area with enough clear space in front of the antenna element so as to prevent injury due to exposure to high levels of Radio Frequency (RF) as shown in the figure below.

7.1.1.4.3 Classrooms

Classrooms .THAAD units will require a classroom rated for classified secret. The THAAD Table Top Trainer (TT3)runs tactical software and is classified

7.1.1.4.4 CTCs

Not required, THAAD is a strategic asset and is not exercised at the Brigade and below level

7.1.1.4.5 Logistics Support Areas

Logistics Support Areas .Local Training Support Centers (TSC) for serviced areas must allocate storage space for TADSS that are signed out to a using unit for training. This would not apply to any TADSS that are part of a Table of Organization and Equipment (TOE).

7.1.1.4.6 Mission Command Training Centers (MCTC)

Not required, THAAD is a strategic asset and is not exercised at the Division level and below

7.1.1.5 Training Services

Training Services .DOTD will provide training support to THAAD elements by providing an online repository of training products and services via FKN or similar access-restricted means. THAAD will obtain the capability to access these remote distributed repositories. DOTD (scenario generation) will provide training scenarios directly to the ITB and to units.

7.1.1.5.1 Management Support Services

Management Support Services .Fires Center of Excellence, Director of Training will manage courseware and distributed learning products through in-house course managers. These products will be available through FKN or similar access-restricted means to operational units.

7.1.1.5.2 Acquisition Support Services

N/A

7.1.1.5.3 General Support Services

General Support Services .Reproduction of IMI media, TSPs, and procurement of long-term maintenance and support services for TADSS after initial fielding period will be required.

7.1.2 Architectures and Standards Component

<u>Architectures and Standards Component.</u> The THAAD training architecture must integrate the individual, operational, and self-development training domains into a near-seamless training environment that must envelope and nurture ADA Soldiers and leaders for their entire career. The interlinked training domains require a networked system of systems to support the institution, unit, home station, and deployed operational theaters. The advantage of integrated and networked LVC training environments is that it allows for the interlinking of the current, stove-piped training domains. The LVC environments must be fully integrated and networked to support ADA full-spectrum training. A deliberate linkage of these three environments with the THAAD architecture must be developed into an LVC environment that supports training of the Soldier on-demand, anywhere or anytime. The goal is a near-seamless integration of training environments to more realistically replicate the operational environment and provide a dynamic, standards-based training environment to support national security requirements across the full spectrum of operations.

7.1.2.1 Operational View (OV)

Operational View (OV) is classified see Appendix A of THAAD
CPD.

7.1.2.2 Systems View (SV)

Systems View (SV) is classified see Appendix A of THAAD STRAP

7.1.2.3 Technical View (TV)

Technical View (TV) is classified see Appendix A of THAAD CPD.

7.1.3 Management, Evaluation, and Resource (MER) Processes Component

7.1.3.1 Management

Management . Where possible THAAD will use existing facilities and support infrastructure. The staff training estimate in support of THAAD will focus on the most efficient use of existing resources and identify and quantify any expected shortfalls. Training development will focus on producing products that are capable of being used both in the institution and in the operational training domain and focused only on combat critical tasks. Training will incorporate the maximum use of simulations to mitigate cost and risk. Students, instructors, and operational unit Soldiers will be routinely asked to evaluate training events and products to determine how best to improve the quality and efficiency of instruction and training events to provide the best quality training with the least expenditure of resources.

7.1.3.1.1 Strategic Planning

Strategic Planning .The development and fielding of THAAD supports Army and Training Transformation and is consistent with the guidance found in the following documents:

- National Defense strategies
- Joint Vision 2020
- The Army Plan and other Service plans
- Future force documentation
- TRADOC supporting plan to the Army Transformation Campaign Plan (ATCP)

7.1.3.1.2 Concept Development and Experimentation (CD&E)

Concept Development and Experimentation (CD&E) . The Army stood up an User Operational Evaluation System THAAD battalion at Fort Bliss, Texas, in the 30th Air Defense Artillery Brigade, United States Army Air Defense Artillery School, from 1995 to 2001. The Army gained considerable insight into doctrine, training, leadership, organization, materiel, and soldier domains while providing valuable feedback to the development community. New equipment training was conducted. Draft doctrine was developed and used in exercises and experiments. Soldiers participated in flight tests.

7.1.3.1.3 Research and Studies

Research and Studies . A number of studies have been conducted on THAAD training devices and training products. The THAAD TIA was the first training study to be conducted and looked at THAAD target audience and types of devices needed. The THAAD CTEA was conducted in 1997 and resulted in basic designs for unit and institutional training. In 1999 a THAAD Institutional Training Devices Trade Study was completed. In 2008 an update to that study is currently in progress. In support of the Institutional Training Base (ITB) a series of Technical Interchange Meetings (TIMs) and the Product Development Review (PDRs) and Critical Design Review (CDRs) have been conducted

7.1.3.1.4 Policy and Guidance

Policy and Guidance .THAAD training will comply with Army policies and guidance. See TRADOC Regulation 350-70, DA Pamphlet 73-1, and Army Regulation 350-1.

7.1.3.1.5 Requirements Generation

Requirements generation .The THAAD CPD and this STRAP contain the requirements for THAAD. As development occurs, these documents will be revised to capture emerging requirements. Requirements that occur during the fielding of the system will be required to go through the Warfighter Involvement Process (WIP) for adjudication and approval.

7.1.3.1.6 Synchronization

Synchronization .Training development resources, manpower, and equipment will be available to support THAAD training support systems over its life cycle, following the guidance in Logistics Support Activity (LOGSA) Pamphlet 700-3, Total Package Fielding; AR 700-142, Materiel Release, Fielding, and Transfer; and DA Pamphlet 700-142, Instructions for Materiel Release, Fielding, and Transfer. TNGDEV synchronization with MATDEV for TADSS development/supportability and instruction for replacement Soldiers must be coordinated until such time as the Army stands up the institutional training for THAAD. NET must be coordinated with the TRNDEV and the units and synchronized in the event of new software and/or hardware development

7.1.3.1.7 Joint Training Support

Joint Training Support .Through development, THAAD will possess the capability to participate in appropriate joint training exercises, tactical and simulated. THAAD will support most, if not all, the attributes articulated in the Joint Operations Concept such as fully integrating with the Joint Force; force tailoring within mission, enemy, terrain and weather, troops and support available, time available, civil considerations (METT-TC) constraints to support the combatant commands; participating in a net-centric environment fully integrated with Army and Joint forces linked with Joint sensors and other enablers to provide information necessary for full-spectrum training and operational considerations.

7.1.3.2 Evaluation

Evaluation . The following paragraphs describe the Operational Evaluation Process.

7.1.3.2.1 Quality Assurance (QA)

Quality Assurance (QA) .The Quality Assurance Office (QAO) will take an active role in evaluating NET and institutional/replacement training courses and activities to ensure the TSS fulfills requirements for quality training of THAAD Soldiers and leaders.

7.1.3.2.2 Assessments

Assessments .A Post Fielding Training Effectiveness Analysis (PFTEA) will be conducted within eighteen to twenty-four (18-24) months of the THAAD system Initial Operational Capability (IOC) to assess the effectiveness and efficiency of the total system training program after the completion of NET training.

7.1.3.2.3 Customer Feedback

Customer Feedback .Institutional/replacement training will actively employ the use of surveys to collect customer feedback for evaluative and/or corrective information about the TSS. All training publications provide contact information for reporting discrepancies and/or improvements for the publications.

7.1.3.2.4 Lessons Learned/After-Action Reviews (AARs)

Lessons Learned/AARs .Institutional/replacement training courses will employ active use of AARs to allow for the collection and analysis of data from Soldiers and leaders to support efficient and effective TSS operations. Training developers will use data from the AARs and data available through the Center for Army Lessons Learned (CALL) to modify and refine TSS operations. Operational units will also employ AARs to refine their training procedures and generate their own lessons learned to improve training efficiency.

The Army Lessons Learned Program is based on the Joint Lessons Learned Program phases of discovery, validation, integration, and evaluation. In the Army process, evaluation is changed to assessment. (See DA Pam 11-33)

>   *a. Discovery.* The discovery phase covers from the determination that there is something that can be improved or learned to inputting or capturing that information in a collaborative environment for use by others. This can be where an individual Soldier sees something that may be improved and inputs that into JLLIS for use by others. Lessons learned organizations use collections in this phase to gather more information in an effort to identify trends, themes, or a widely prevalent situation affecting accomplishment of some aspect of the Army's mission..
>   *b. Validation.* In the validation phase, analysts or others examine the input to determine if the observation is valid and others can adapt and apply it. If the answer is yes, the observation is valid and is a lesson or best practice that be integrated.
>   *c. Integration.* Integration is the phase where a lesson or best practice may be adapted and applied. Units adapt lessons within training and operations to improve readiness and enhance effective operations. The institutional force integrates lessons into DOTMLPF-P requirements. At times, there are issues associated with a lesson that require discussion and resource decisions. The lesson will need to enter an issue resolution process to determine what changes need to be made and how they will be made. Lessons learned organizations use this phase for dissemination of lessons that can go directly to units and to work with the institutional force through issue resolution processes to integrate the lessons into DOTMLPF-P changes. This phase ends when solutions are implemented and the force begins using changes.
>   *d. Assessment.* In the assessment phase, Soldiers observe implemented solutions during operations, exercises, or experimentation to determine if the changes met issue requirements. If the issue is not resolved, or only partially resolved, the issue may re-enter the integration phase. If the commander decides the lesson solution or best practice met the requirement or improved the unit's performance, the lesson is considered "learned" and documented as such in the JLLIS. DOTMLPF-P adjustments become the new baseline for action at the appropriate level of organization.

7.1.3.3 Resource Processes

Resources . Training resources are included as a part of the Unit's operational budget.

8.0 Self-Development Training Domain

THAAD will maximize the use of state-of-the-art dL capabilities to implement the training methodologies and delivery techniques provided in TRADOC Reg 350-70. Distributed Learning provides the capability to enhance and sustain Total Army readiness by delivering standardized training to soldiers and units at the right place and time using multiple delivery means and techniques. It accomplishes this by leveraging technology and training design efficiencies to provide more cost effective and efficient training. Training sites, connectivity, software, hardware, and internet access capabilities must be considered.

8.1 Self-Development Training Concept and Strategy

   Self-Development Training Concept and Strategy. The combination of training publications and doctrinal literature available through FKN or other various delivery methods of Distant Learning (dL), use of the TDT, the material contained within the TSPs, and electronic technical publications contained on the system will allow self-development training on the principles and functional theory of THAAD specific employment and BMDS joint and theater operations. Training material will be available in both peacetime and mobilization environments through the reach-back functionality from information repositories discussed in the THAAD STRAP and accessible to Soldiers through restricted-access sites.

   THAAD will maximize the use of state-of-the-art dL capabilities to implement the training methodologies and delivery techniques provided in TRADOC Reg 350-70. Distributed Learning provides the capability to enhance and sustain Total Army readiness by delivering standardized training to soldiers and units at the right place and time using multiple delivery means and techniques. It accomplishes this by leveraging technology and training design efficiencies to provide more cost effective and efficient training. Training sites, connectivity, software, hardware, and internet access capabilities must be considered.

8.1.1 Product Lines

Product Lines . Training products for THAAD resulted from the NET products developed for THAAD Battery fielding and include training support packages and training publications.

- - - Courseware/Courses
    - THAAD Fire Control Enhanced Operator/Maintainer Course
    - THAAD Launch Control Station Enhanced Operator/Maintainer Course
    - THAAD Radar Enhanced Operator/Maintainer Course
    - THAAD Prime Power Unit Enhanced Operator/Maintainer Course
    - THAAD Launcher Enhanced Operator/Maintainer Course
    - THAAD System Administrators Course
    - THAAD Staff Planners Course
    - THAAD Technical Orientation Course

  - Training Publications
    - STP 44-14E14-SM-TG, Patriot and THAAD Fire Control Enhanced Operator/Maintainer
    - STP 44-14J14-SM-TG, C4I Tactical Operations Center Enhanced Operator/Maintainer
    - STP 44-14T14-SM-TG, Patriot and THAAD Launcher Enhanced Operator/Maintainer
    - TC 3.01.92 THAAD Gunnery
    - TC 44-693-10, THAAD Radar Crew Training
    - TC 44-693-11, THAAD Launcher and Tactical Reload Training
    - TC 44-693-12, THAAD Fire Controll and Communications Crew Training
    - ATP 3-01.91, THAAD Operations
    - THAAD Combined Arms Training Startegy (CATS)

  - Training Support Packages
    - THAAD Fire Control Operator/Maintainer Course (043-14E10/20)
    - THAAD Launch Control Station (LCS) Operator/Maintainer Course (043-14H10/20)
    - THAAD Launcher Operator/Maintainer Course (043-14T10/20)
    - THAAD Follow-on Course (4F-F45)(14A)
    - THAAD TFCCRadar Maintainer Course (4F-F47)(140E)
    - THAAD LCS Systems Integrator Course (4F-F46)(140A)

Soldier self-development training will be accomplished primarily through dL. The most commonly used dL delivery techniques are:

- Correspondence Courses - Self-paced training materials that can be used for sustainment of individual training.

- Computer Based Instruction - Refers to course materials presented and controlled by a computer and which use multiple requirements for student responses as a primary means of facilitating learning. It is essentially individualized self-paced or group interactive instruction combined with multi-media presentations.

- Video Tele-training - provides the means to distribute training to any number of students simultaneously.

- Through development of the THAAD system there shall be a "reach back" capability inherent in the THAAD TFCC C2 component via the internet to link to Army Knowledge Enterprise compliant repositories, including FKN, to obtain updates of stored data, access additional training products, or exchange training products.

8.1.1.1 Training Information Infrastructure

Training Information Infrastructure. The training information infrastructure consists of hardware, software, and communications systems. These provide for local and global network infrastructures to facilitate the management, dissemination, and delivery of training product information. The THAAD interconnecting hardware, software, and communications systems will conform to both Joint and Army training architectures. Future THAAD development must provide for networked embedded training capability to participate in joint training exercises and the capability to receive simulated track information as well as command and control information over C4I networks. Restricted-access to online repositories such as FKN will provide opportunities for Soldiers to perform self-development studies of THAAD-related subjects.

8.1.1.1.1 Hardware, Software, and Communications Systems

Hardware, Software, and Communications Systems .The use of state-of-the-art distance learning capabilities (IAW TRADOC Reg 350-70) shall provide the capability to enhance and sustain Army readiness by delivering standardized training to soldiers and units at the right place and time using multiple delivery means and techniques. This will be accomplished by leveraging technology and training design efficiencies to provide more cost effective and efficient training. It is envisioned that THAAD will use dL in training all systems operations. Training sites, connectivity, software, hardware, and Internet access capabilities must be considered. The most commonly used dL delivery techniques are:

8.1.1.1.2 Storage, Retrieval, and Delivery

Storage, Retrieval, and Delivery . The institutions, units and individuals will use official Department of the Army (DA) publications and forms (see below) to access approved FM, ATP, STP and TCs for THAAD. Official Department of the Army (DA) publications are managed by the Army Publishing Directorate (APD) under the direction of the Administrative Assistant to the Secretary of the Army (AASA). The Army uses the latest publishing technologies to produce high-quality, enhanced, electronic publications and forms.

8.1.1.1.3 Management Capabilities

Management Capabilities .The FKN contains an infrastructure platform through which learning content is delivered and managed. It consists of a combination of hardware and software tools that perform a variety of functions related to sustainment and reach-back training. The FKN will manage the training content available. Operational unit-level management will determine what content is best suited for self-development studies for THAAD Soldiers. Soldiers also have the capability to determine their own path ahead for self-development studies from the available online repositories.

8.1.1.1.4 Other Enabling Capabilities

Other Enabling Capabilities .Interactive Electronic Technical Manuals (IETMs), STPs, and IMI exportable TSPs will be available through the resources discussed in paragraph 8.1.1.1.2 and will be accessible through these online repositories or through the embedded training functionality of the system equipment in future development. The THAAD enhanced operator/maintainers, through a combination of individual and collective tasks are trained to the skill levels required to operate and maintain the THAAD system. This will include using dL, DIS, and STOW-type capabilities. The training standards for the Standards in Training Commission (STRAC) will be outlined in DA PAM 350-38, Standards in Weapons Training. THAAD training device programmed growth will allow interaction with the ASoS, Ballistic Missile Defense System (BMDS) Distributed Multi-echelon Training System (DMeTS) and will provide the training capability to perform inter-operability functions. Integrated training with other joint and combined arms units training will transfer continuity to the battlefield for situational awareness and will support Joint, Army and Air Defense doctrine.

8.1.1.2 Training Products

Training Products . Self-development training will require training publications and TSPs to facilitate the self-development process.

8.1.1.2.1 Courseware

Courseware. Specific courseware products not currently identified may be inserted into courses defined in paragraph 6.1.1.2.2 (Courses) or paragraph 6.1.1.3 (TADSS) and accessible through AKO for online registration through the Digital Training Access Center (DTAC) if available.

8.1.1.2.2 Courses

Courses. No courses are available for the Self Development domain

8.1.1.2.3 Training Publications

Training Publications .The same training publications available for operational training will be available for self-development training. See paragraph 7.1.1.2.3.

8.1.1.2.4 Training Support Package (TSP)

TSP .The same training support packages available for operational training will be available for self-development training. See paragraph 7.1.1.2.4.

8.1.1.3 Training Aids, Devices, Simulators and Simulations (TADSS)

TADSS .TADSS availability for self-development training on the THAAD system consists of unit resources and will require scheduling with unit-level management for self-development purposes:

8.1.1.3.1 Training Aids

Training Aids .No training aids are planned for self-development training. Training aids for THAAD are institutional level training aids and are used at the EOD School.

8.1.1.3.2 Training Devices

Training Devices .There are no training devices associated with self-development training.

8.1.1.3.3 Simulators

Simulators .There are no simulators designated for the self development domain.

8.1.1.3.4 Simulations

Simulations .There are no simulations designated for the self development domain

8.1.1.3.5 Instrumentation

Instrumentation .Instrumentation is not available for the self development domain.

8.1.1.4 Training Facilities and Land

Training Facilities and Land . T raining facilities or land necessary for self-development training will be unit-level classrooms, if available. Unit-level classroom use must be scheduled through unit-level management. Installations normally have classrooms available to Soldiers for use with dL capabilities.

8.1.1.4.1 Ranges

Ranges .The Self Development Training Domain does not require ranges to support the THAAD System.

8.1.1.4.2 Maneuver Training Areas (MTA)

Maneuver Training Areas (MTA) .The Self Development Training
Domain does not require MTAs to support the THAAD System

8.1.1.4.3 Classrooms

Classrooms .If available, classrooms at the operational unit may be scheduled for self-development activities. Installations normally have classrooms available to Soldiers for use with dL capabilities.

8.1.1.4.4 CTCs

CTCs .The Self Development Training Domain does not require CTCs to support the THAAD System.

8.1.1.4.5 Logistics Support Areas

Logistics Support Areas .Local Training Support Centers (TSC) for serviced areas may provide some training aids to supplement self-development for other than system specific subject areas.

8.1.1.4.6 Mission Command Training Centers (MCTC)

Mission Command Training Centers (BCTC) .The Self Development Training Domain does not require MCTC to support the THAAD system.

8.1.1.5 Training Services

Training Services. The Directorate of Training Developemnt and Doctrine will provide training support to self-development by providing an online repository of training products and services via FKN or similar access-restricted means. Through development, THAAD system major end items will obtain the capability to access these remote distributed repositories.

8.1.1.5.1 Management Support Services

Management Support Services .Fires Center of Excellence, Director of Training Development and Doctrine will manage courseware and distributed learning products through in-house course managers. These products will be available through FKN or similar access-restricted means for self-development purposes.

8.1.1.5.2 Acquisition Support Services

Acquisition Support Services .are not required for the Self Development domain.

8.1.1.5.3 General Support Services

General Support Services .are not required for the Self
Development domain.

8.1.2 Architectures and Standards Component

Architectures and Standards Component .The THAAD training architecture must integrate the individual, operational, and self-development training domains into a near-seamless training environment that must envelope and nurture ADA Soldiers and leaders for their entire career. The goal is a near-seamless integration of training environments to more realistically replicate the operational environment and provide a dynamic, standards-based training environment to support national security requirements across the full spectrum of operations.

8.1.2.1 Operational View (OV)

Operational View (OV) is classified see Appendix A of THAAD STRAP.

8.1.2.2 Systems View (SV)

Systems View (SV) is classified see Appendix A of THAAD STRAP.

8.1.2.3 Technical View (TV)

Technical View (TV) is classified see Appendix A of THAAD
STRAP.

8.1.3 Management, Evaluation, and Resource (MER) Processes Component

8.1.3.1 Management

Management . THAAD operational units will focus on the most efficient use of existing resources and identify and quantify any expected shortfalls. Self-development training use of operational unit facilities and training resources will be scheduled on an as-needed/availability basis.

8.1.3.1.1 Strategic Planning

Strategic Planning .The development and fielding of THAAD supports Army and Training Transformation and is consistent with the guidance found in the following documents:

- National Defense strategies
- Joint Vision 2020
- The Army Plan and other Service plans
- Future force documentation
- TRADOC supporting plan to the Army Transformation Campaign Plan (ATCP)

8.1.3.1.2 Concept Development and Experimentation (CD&E)

Concept Development and Experimentation (CD&E) .N/A

8.1.3.1.3 Research and Studies

N/A

8.1.3.1.4 Policy and Guidance

Policy and Guidance .THAAD training will comply with Army policies and guidance. See TRADOC Regulation 350-70, DA Pamphlet 73-1, and Army Regulation 350-1.

8.1.3.1.5 Requirements Generation

Requirements Generation .The THAAD CPD and this STRAP contain the requirements for THAAD. As development occurs, these documents will be revised to capture emerging requirements.

8.1.3.1.6 Synchronization

Synchronization .Training development resources, manpower, and equipment will be available to support THAAD training support systems over its life cycle, following the guidance in Logistics Support Activity (LOGSA) Pamphlet 700-3, Total Package Fielding; AR 700-142, Materiel Release, Fielding, and Transfer; and DA Pamphlet 700-142, Instructions for Materiel Release, Fielding, and Transfer.

8.1.3.1.7 Joint Training Support

Joint Training Support . The Self Development Training Domain does not require Joint training Support to support the THAAD System.

8.1.3.2 Evaluation

Evaluation . Self-development - Soldiers will be routinely asked to evaluate training products and provide feedback to determine how best to improve the quality and efficiency of training materials and delivery methods to present the best quality training with the least expenditure of resources.

8.1.3.2.1 Quality Assurance (QA)

Quality Assurance .The following paragraphs will discuss quality assurance.

8.1.3.2.2 Assessments

Assessments. The Army Knowledge Online (AKO) infrastructure includes approved Learning Management Systems (LMS) that provide an integrated platform for content, delivery, assessment, and management of learning via Web Based Training (WBT).

8.1.3.2.3 Customer Feedback

Customer Feedback .Customer feedback in the form of corrections or other improvements to training publications will be provided through the use of DA Form 2028. Online repository sites contain links to report problems with the delivery of training products contained on the sites.

8.1.3.2.4 Lessons Learned/After-Action Reviews (AARs)

Lessons Learned/After-Action Reviews . S tudent and course feedback will be consolidated to develop lessons learned, available through the Center for Army Lessons Learned (CALL) information system.

8.1.3.3 Resource Processes

Resource Processes . Training resources are included as a part of the Unit's operational budget.

A Milestone Annex

TRAINING DEVELOPMENT MILESTONE SCHEDULE - SHEET A	PAGE OF PAGES	REQUIREMENTS CONTROL SYMBOL	
SYSTEM: THAAD	ACAT	OFFICE SYMBOL: ATSF-D	AS OF DATE

POINTS OF CONTACT	NAME	OFFICE SYMBOL	TELEPHONE
MATERIEL COMMAND	COL Anthony BROWN	MDA TH	DSN 645-2011
TRADOC PROPONENT	COL CASEY, KEITH	ATSF-D	580 442-2301 (DSN 639)
TCM	COL Robert Kelly	ATSF-FML	580 442-6042
CD:	ULYSESS JOHNSON	ATSF-FR	580 558-0754
TD:	BILLY VANCE	ATSF-DE	580 558-0363 (DSN 495)
ATSC:			
SUPPORTING PROPONENTS:			

ITEM	DATE	RESPONSIBLE AGENCY/POC		TELEPHONE
ICD				
SMMP:				
MRD:				
ILSMP:				
TTSP:				
QQPRI:				
BOIP:				
NETP:				

COMMENTS:

TRAINING DEVELOPMENT MILESTONE SCHEDULE - SHEET B	PAGE OF PAGES	REQUIREMENTS CONTROL SYMBOL
SYSTEM	TRADOC SYMBOL	AS OF DATE

TRAINING PACKAGE ELEMENT/PRODUCT

LEGEND:	MILESTONES BY QUARTER															
	FY				FY				FY				FY			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q

NOTE: Identify **TRAINING DEVELOPMENT MILESTONES** .   TRADOC FORM 569-1-R-E provides a detailed list of typical training development products required to support system training integration.

COMMENTS:

NOTE: The following table is optional; however, it is useful for populating SHEET B above and provides greater detail for each milestone. If not used, delete from this section before submitting for staffing.

	Individual Training Plan (Per each ITP)	
	Milestone:	Date
	1. Initial Individual Training Plan (ITP) submitted.	
	2. Annotated task list submitted.	
	3. Course Administrative Data (CAD) submitted.	
	4. Training Program Worksheet (TPW) submitted.	
	5. ITP submitted.	
	6. POI submitted.	

	7. Digitized copy archived.	
	8. Resident course start date (NLT 12 months after FUE).	
	Army Correspondence Course Program	
	(Only as a DL portion of a TATS course)	
	Milestone:	Date
	1. Requirement identified and submitted for approval.	
	2. Requirement approved by HQ TRADOC.	
	3. Development initiated.	

	4. Advance breakdown sheet submitted.	
	5. Digitized camera-ready copy (CRC) submitted.	
	6. Subcourse material ready for replication/distribution.	
	Field Manuals (FMs)	
	Milestone:	Date
	1. Requirements identified.	
	2. Draft FM changes validated.	
	3. FM outlines approved.	

	4. FM coordinating draft completed.	
	5. Print/digitization request initiated.	
	6. Approved digitized CRC submitted.	
	7. Replication/distribution completed.	
	Army Training Literature Note: Includes the Soldiers' Manual (SM), Trainers' Guide (TG), and Army Training and Evaluation Program (ARTEP) products.	
	Milestone:	Date

	1. Analysis completed.	
	2. Draft SM, ARTEP MTP, and TG.	
	3. ATSC staffing.	
	4. Digitized/CRC submitted.	
	5. Replication/distribution completed.	
	Interactive Multimedia Instruction (IMI)/Distance Learning	
	Milestone:	Date
	1. Requirements identified and submitted for approval.	

	2. Requirements approved by ATSC and TRADOC.	
	3. Resources identified.	
	4. Courseware developed and validated.	
	5. Master materials to ATSC for replication and distribution.	
	6. Replication/distribution completed.	
	Training Effectiveness Analysis (TEA)	
	(Conducted in-house, by contract, Training Development and Analysis Activity [TDAA], TRADOC Analysis Center [TRAC], or Program Manager [PM])	

	Milestone:	Date
	1. TEA during capabilities development.	
	2. TEA updated for Milestone Decision Review A.	
	3. TEA updated for Milestone Decision Review B.	
	4. TEA updated for Milestone Decision Review C.	
	5. Post-Fielding TEA (PFTEA) planned.	
	Army Visual Information Production and Distribution Program (DAVIPDP)	

	Milestone:	Date
	1. High risk tasks and jobs identified.	
	2. Storyboards validated.	
	3. DAVIPDP requirements submitted to ATSC.	
	4. Requirements approved by DA.	
	5. Production initiated.	
	6. Replication/distribution completed.	

	Training Aids, Devices, Simulators, and Simulations	
	(TADSS)	
	Milestone:	Date
	1. High risk, hard-to-train tasks identified.	
	2. Need for TADSS identified.	
	3. TADSS concept validated.	
	4. TADSS incorporated into the STRAP (part of the CATS).	
	5. Analytical justification using the	

	TEA provided.	
	6. TSS CDD/ CPD developed, if required.	
	7. TADSS effectiveness validated.	
	8. TADSS incorporated into the ICD, CDD, CPD, STRAP	
	9. MOS-specific milestones/requirements for TADSS developed and incorporated in the integrated training strategy (ITS).	
	Training Facilities and Land	
	Milestone:	Date
	1. Range and	

	facility requirements identified.	
	2. Identification of construction requirements completed.	
	3. Construction requirements submitted to MACOM.	
	4. Requirements validated and updated.	
	5. Supporting requirements identified and availability coordinated.	
	6. Installation and other construction requirements submitted to MACOM.	
	7. Refined	

	construction requirements and range criteria forwarded to MACOM, IMA, Chief of Engineers	
	8. Construction initiated.	
	Training Ammunition	
	Milestone:	
	1. Ammunition identified.	
	2. Initial ammunition requirements validated.	
	3. Requirements included in the ORD.	
	4. Ammunition	

	item developed.	
	5. Validation and test completed.	
	6. Ammunition requirements identified in the ITP.	
	7. Requirements provided to installation/MACOM manager.	
	8. Requirements included in DA Pam 350-38.	
	9. Production entered.	
	Training Equipment	
	Milestone	

	1.	
	2.	
	Training Services	
	Milestone	
	1. Contractor Logistic Support	
	2. Contractor NET Support	
	3. Contractor DET Support	

B References

C Coordination Annex

Organization/POC (Date)	Summary of Comments Submitted (A/S/C)			Comments Accepted/ Rejected						Rationale for Non-Acceptance - S, C
				Accepted			Rejected			
	A	S	C	A	S	C	A	S	C	
v2.2.3 Ronald B Hildner 2015/01/29 - 2015/02/08	Document Accepted As Written			0	0	0	0	0	0	-
v2.2.2 Approvals - Ronald B Hildner 2015/01/29 - 2015/02/08	Document Accepted As Written			0	0	0	0	0	0	-
v2.2.1 Approvals - dennis Wao 2015/01/29 - 2015/02/08	Document Accepted As Written			0	0	0	0	0	0	-
v2.2 Army - USASOC 2014/09/05 - 2014/10/05	No Comments Submitted			0	0	0	0	0	0	-
v2.2 Army - USAREUR 2014/09/05 - 2014/10/05	Document Accepted As Written			0	0	0	0	0	0	-
v2.2 Army - USARC G7 (US Army Reserve Cmd) 2014/09/05 - 2014/10/05	No Comments Submitted			0	0	0	0	0	0	-
v2.2 Army - USAMA 2014/09/05 - 2014/10/05	No Comments Submitted			0	0	0	0	0	0	-

v2.2 Army - USAACE - Aviation School 2014/09/05 - 2014/10/05	Document Accepted As Written	0	0	0	0	0	0	-	
v2.2 Army - US Joint Forces Command Net-C2 2014/09/05 - 2014/10/05	No Comments Submitted	0	0	0	0	0	0	-	
v2.2 Army - TRADOC_ARCIC 2014/09/05 - 2014/10/05	No Comments Submitted	0	0	0	0	0	0	-	
v2.2 Army - TRADOC G-3/5 2014/09/05 - 2014/10/05	No Comments Submitted	0	0	0	0	0	0	-	
v2.2 Army - TRADOC Command Safety Office 2014/09/05 - 2014/10/05	No Comments Submitted	0	0	0	0	0	0	-	
v2.2 Army - TCM-Virtual (CS/CSS) 2014/09/05 - 2014/10/05	No Comments Submitted	0	0	0	0	0	0	-	
v2.2 Army - TCM-SBCT 2014/09/05 - 2014/10/05	0	1	0	0	1	0	0	0	0
v2.2 Army - TCM-Live 2014/09/05 - 2014/10/05	No Comments Submitted	0	0	0	0	0	0	-	

v2.2 Army - TCM-Gaming 2014/09/05 - 2014/10/05	No Comments Submitted	0	0	0	0	0	0	-
v2.2 Army - TCM-ABCT 2014/09/05 - 2014/10/05	No Comments Submitted	0	0	0	0	0	0	-
v2.2 Army - TCM TADLP 2014/09/05 - 2014/10/05	Document Accepted As Written	0	0	0	0	0	0	-
v2.2 Army - TCM ITE 2014/09/05 - 2014/10/05	No Comments Submitted	0	0	0	0	0	0	-
v2.2 Army - TCM Intel Sensors 2014/09/05 - 2014/10/05	No Comments Submitted	0	0	0	0	0	0	-
v2.2 Army - TCM Constructive 2014/09/05 - 2014/10/05	No Comments Submitted	0	0	0	0	0	0	-
v2.2 Army - TCM ATIS 2014/09/05 - 2014/10/05	No Comments Submitted	0	0	0	0	0	0	-
v2.2 Army - Space & Missile Defense Command 2014/09/05 - 2014/10/05	No Comments Submitted	0	0	0	0	0	0	-
v2.2 Army - SCoE	No Comments							

2014/09/05 – 2014/10/05	Submitted	0	0	0	0	0	0	–
v2.2 Army – PM-UAS 2014/09/05 – 2014/10/05	No Comments Submitted	0	0	0	0	0	0	–
v2.2 Army – PM SCIE 2014/09/05 – 2014/10/05	No Comments Submitted	0	0	0	0	0	0	–
v2.2 Army – PM PROPHET 2014/09/05 – 2014/10/05	No Comments Submitted	0	0	0	0	0	0	–
v2.2 Army – PM Fixed Wing 2014/09/05 – 2014/10/05	No Comments Submitted	0	0	0	0	0	0	–
v2.2 Army – PM DCGS-A 2014/09/05 – 2014/10/05	No Comments Submitted	0	0	0	0	0	0	–
v2.2 Army – PM Air Warrior 2014/09/05 – 2014/10/05	No Comments Submitted	0	0	0	0	0	0	–
v2.2 Army – PEO-STRI Customer Support Group 2014/09/05 – 2014/10/05	Document Accepted As Written	0	0	0	0	0	0	–
v2.2 Army – PEO Missiles and Space (IAMD) 2014/09/05 – 2014/10/05	No Comments Submitted	0	0	0	0	0	0	–

v2.2 Army - PEO C3T PM TR 2014/09/05 - 2014/10/05	No Comments Submitted			0	0	0	0	0	0	-
v2.2 Army - PEO Aviation 2014/09/05 - 2014/10/05	1	0	0	1	0	0	0	0	0	
v2.2 Army - MSCoE - MANSCEN 2014/09/05 - 2014/10/05	Document Accepted As Written			0	0	0	0	0	0	-
v2.2 Army - MCoE - Infantry & Armor School 2014/09/05 - 2014/10/05	No Comments Submitted			0	0	0	0	0	0	-
v2.2 Army - MCCoE, DOT-S 2014/09/05 - 2014/10/05	No Comments Submitted			0	0	0	0	0	0	-
v2.2 Army - LD&E 2014/09/05 - 2014/10/05	No Comments Submitted			0	0	0	0	0	0	-
v2.2 Army - IMCOM 2014/09/05 - 2014/10/05	Document Accepted As Written			0	0	0	0	0	0	-
v2.2 Army - ICoE - Mil Intelligence School 2014/09/05 - 2014/10/05	No Comments Submitted			0	0	0	0	0	0	-
v2.2 Army - Human Resource Command										

(HRC) 2014/09/05 – 2014/10/05	No Comments Submitted		0	0	0	0	0	0	-	
v2.2 Army - HQDA G2 - Alternate POC 2014/09/05 – 2014/10/05	No Comments Submitted		0	0	0	0	0	0	-	
v2.2 Army - HQDA G2 2014/09/05 – 2014/10/05	8	0	0	8	0	0	0	0	0	
v2.2 Army - HQ INSCOM G3, NWD 2014/09/05 – 2014/10/05	No Comments Submitted		0	0	0	0	0	0	-	
v2.2 Army - FCoE - Field Artillery 2014/09/05 – 2014/10/05	Document Accepted As Written		0	0	0	0	0	0	-	
v2.2 Army - DAMO-TRS 2014/09/05 – 2014/10/05	No Comments Submitted		0	0	0	0	0	0	-	
v2.2 Army - CYBER CoE - Signal School 2014/09/05 – 2014/10/05	2	0	0	2	0	0	0	0	0	
v2.2 Army - CYBER CoE - OCOS 2014/09/05 – 2014/10/05	Document Accepted As Written		0	0	0	0	0	0	-	
v2.2 Army - CTCD 2014/09/05 – 2014/10/05	No Comments Submitted		0	0	0	0	0	0	-	

v2.2 Army - Combined Arms Center 2014/09/05 - 2014/10/05	No Comments Submitted			0	0	0	0	0	0	-
v2.2 Army - CAC-T; Training Management Dir 2014/09/05 - 2014/10/05	0	7	0	0	7	0	0	0	0	
v2.2 Army - Brigade Modernization Cmd (BMC) 2014/09/05 - 2014/10/05	No Comments Submitted			0	0	0	0	0	0	-
v2.2 Army - AVNCoE Aviation Logistics School 2014/09/05 - 2014/10/05	No Comments Submitted			0	0	0	0	0	0	-
v2.2 Army - ATSC TSAID 2014/09/05 - 2014/10/05	No Comments Submitted			0	0	0	0	0	0	-
v2.2 Army - ATSC Fielded Devices 2014/09/05 - 2014/10/05	No Comments Submitted			0	0	0	0	0	0	-
v2.2 Army - ARNG-RMQ-RA 2014/09/05 - 2014/10/05	Document Accepted As Written			0	0	0	0	0	0	-
v2.2 Army - Army National Guard 2014/09/05 -	No Comments Submitted			0	0	0	0	0	0	-

2014/10/05								
v2.2 Army - Army Material Command (AMC), G3 2014/09/05 - 2014/10/05	No Comments Submitted	0	0	0	0	0	0	-
v2.2 Army - AMEDD Center & School 2014/09/05 - 2014/10/05	Document Accepted As Written	0	0	0	0	0	0	-
v2.1 Peer - USASOC 2014/07/14 - 2014/08/13	No Comments Submitted	0	0	0	0	0	0	-
v2.1 Peer - USAACE - Aviation School 2014/07/14 - 2014/08/13	Document Accepted As Written	0	0	0	0	0	0	-
v2.1 Peer - Transportation School 2014/07/14 - 2014/08/13	No Comments Submitted	0	0	0	0	0	0	-
v2.1 Peer - Transportation Engineering Ag. 2014/07/14 - 2014/08/13	No Comments Submitted	0	0	0	0	0	0	-
v2.1 Peer - TRADOC_ARCIC 2014/07/14 - 2014/08/13	No Comments Submitted	0	0	0	0	0	0	-
v2.1 Peer - Soldier Support Institute	No Comments	0	0	0	0	0	0	-

(SSI) 2014/07/14 - 2014/08/13	Submitted								
v2.1 Peer - CYBER CoE - OCOS 2014/07/14 - 2014/08/13	0	1	0	0	1	0	0	0	0
v2.1 Peer - SCoE 2014/07/14 - 2014/08/13	1	1	5	0	0	0	1	1	5
v2.1 Peer - PM-Tactical Vehicles 2014/07/14 - 2014/08/13	No Comments Submitted	0	0	0	0	0	0	-	
v2.1 Peer - PEO-STRI Customer Support Group 2014/07/14 - 2014/08/13	Document Accepted As Written	0	0	0	0	0	0	-	
v2.1 Peer - MSCoE - MANSCEN 2014/07/14 - 2014/08/13	Document Accepted As Written	0	0	0	0	0	0	-	
v2.1 Peer - MCoE - Infantry & Armor School 2014/07/14 - 2014/08/13	Document Accepted As Written	0	0	0	0	0	0	-	
v2.1 Peer - MCCoE, DOT-S 2014/07/14 - 2014/08/13	No Comments Submitted	0	0	0	0	0	0	-	
v2.1 Peer - Legal Center/School	No Comments								

Name	Status									
2014/07/14 - 2014/08/13	Submitted			0	0	0	0	0	0	-
v2.1 Peer - JITC, CIS 2014/07/14 - 2014/08/13	No Comments Submitted			0	0	0	0	0	0	-
v2.1 Peer - IMCOM 2014/07/14 - 2014/08/13	No Comments Submitted			0	0	0	0	0	0	-
v2.1 Peer - ICoE - Mil Intelligence School 2014/07/14 - 2014/08/13	37	6	0	36	6	0	1	0	0	
v2.1 Peer - Human Resource Command (HRC) 2014/07/14 - 2014/08/13	No Comments Submitted			0	0	0	0	0	0	-
v2.1 Peer - FCoE-ADA School 2014/07/14 - 2014/08/13	No Comments Submitted			0	0	0	0	0	0	-
v2.1 Peer - FCoE - Field Artillery 2014/07/14 - 2014/08/13	5	2	0	5	2	0	0	0	0	
v2.1 Peer - Brigade Modernization Cmd (BMC) 2014/07/14 - 2014/08/13	No Comments Submitted			0	0	0	0	0	0	-
v2.1 Peer - BCT CoE - Fort Jackson, SC 2014/07/14 -	No Comments Submitted			0	0	0	0	0	0	-

2014/08/13								
v2.1 Peer - AVNCoE Aviation Logistics School 2014/07/14 - 2014/08/13	No Comments Submitted	0	0	0	0	0	0	-
v2.1 Peer - ATSC Fielded Devices 2014/07/14 - 2014/08/13	No Comments Submitted	0	0	0	0	0	0	-
v2.1 Peer - ATEC 2014/07/14 - 2014/08/13	No Comments Submitted	0	0	0	0	0	0	-
v2.1 Peer - Army Research Laboratory (ARL) 2014/07/14 - 2014/08/13	No Comments Submitted	0	0	0	0	0	0	-
v2.1 Peer - Army Finance School 2014/07/14 - 2014/08/13	No Comments Submitted	0	0	0	0	0	0	-
v2.1 Peer - AMEDD Center & School 2014/07/14 - 2014/08/13	Document Accepted As Written	0	0	0	0	0	0	-

Key
Completed Review with Comments
Completed Review, No Comments
Active Review Occurring

ATSA-C   29 January 2015
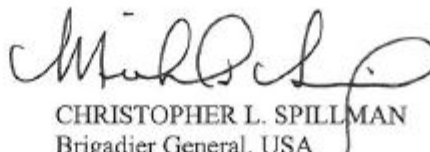
MEMORANDUM FOR RECORD

SUBJECT: Terminal High Altitude Area Defense (THAAD) System Training Plan (STRAP)

1. References:

    a. Army Regulation 350-1, Army Training and Leader Development.

    b. TRADOC Regulation 71-20, Concept Development, Capabilities Determination, and Capabilities Integration, 28 June 2013

    c. Memorandum of Instruction for Training and Transfer of STRAP Approval Authority, 25 April 2012.

    d. Delegation of System Training Plan (STRAP) Approval Authority, 21 May 2014.

2. I approve the Terminal High Altitude Area Defense System Training Plan Revision 2.2. A copy of the plan will be posted to the Central Army Registry (CAR) within 30 days of the approval date.

3. Point of Contact for this action is LTC Ronald B. Hildner, Air Defense Enlisted Training Division, Directorate of Training Development and Doctrine, (580) 442-3611, ronal.b.hildner.mil@mail.mil.

CHRISTOPHER L. SPILLMAN
Brigadier General, USA
Commandant

Approval Memo